SONY

3-756-741-21(1)

Video Cassette Recorder

Operating Instructions

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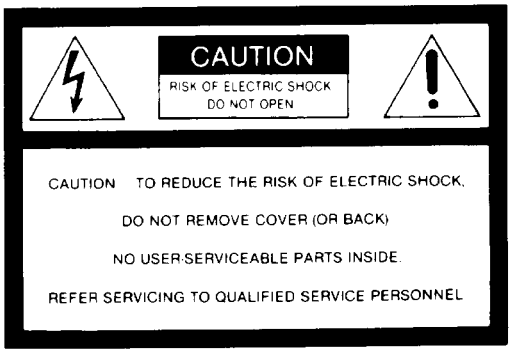
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

The English language instruction manual covers both the Canadian and U.S.A. models of the SLV-701HF.
The models are the same with the exception of the MENU screen, where LANGUAGE option allows you to select either French or English as your on-screen language. (See page 17 for details)

Owner's Record

The model number is located at the front and rear of the unit and the serial number is on the top. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony service dealer regarding this product.

Model No. SLV-701HF Serial No. _____

For the Customers in the U.S.A.

INFORMATION
This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna.
Relocate the equipment with respect to the receiver.
Move the equipment away from the receiver.
Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:
"How to Identify and Resolve Radio-TV Interference Problems."
This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

Caution
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

NOTE TO CATV SYSTEM INSTALLERS IN THE U.S.A.:
This reminder is provided to call the cable TV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system in the building, as close to the point of cable entry as practical.

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Precautions

Safety

- Operate the unit only on 120 V AC, 60 Hz.
- If anything falls into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- One blade of the plug is wider than the other for the purposes of safety and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer.
- Unplug the unit from the wall outlet if you do not intend to use it for an extended period of time. To disconnect the cord, pull it out by the plug, never by the cord.

Installation

- Allow adequate air circulation to prevent internal heat build-up.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Do not install the unit in an inclined position. It is designed to be operated in a horizontal position only.
- Keep the unit and cassettes away from equipment with strong magnets, such as microwave ovens or large loudspeakers.
- Do not place heavy objects on the unit.

Operation

- When the unit is not in use, turn the power off to conserve energy and to extend its life.
- Remove and store video cassettes after recording or playback.

Cleaning

- Clean the cabinet, panel and controls with a dry, soft cloth, or a soft cloth slightly moistened with a mild detergent solution.
- Do not use any type of solvent, such as alcohol or benzine.

Introduction

How to Use This Manual

This manual is divided into five chapters.
The chapters and their contents are as follows:

Preliminaries **(page 2)**
Preparation **(page 6)**
Basic Operations **(page 26)**
Advanced Operations **(page 41)**
Additional Information **(page 47)**

If you are using your VCR for the first time, start from the section **"Hookups and Getting Started"** (page 6). This section explains how to hookup, set up, and operate your VCR so that you can start enjoying it right away.
For information about the VCR's basic operations, such as Playback (page 26), Recording TV Programs (page 31), or Timer Recording (page 34), see **Basic Operations**.
If you are already familiar with the basic operations, see **Advanced Operations**.
If you have any problems in operating the VCR, refer to Troubleshooting. If your VCR is in need of repair, contact your nearest Sony Service Center facility.

Conventions of this manual

This manual explains operations using the VCR Remote Commander. However, the buttons on the VCR with the same name or mark as those on the Remote Commander function exactly the same as those of the Remote Commander.

When you are reading through the manual, remember:

- Buttons and switches are shown in uppercase letters.
  Example: Press ▷ PLAY.
  Numbers in the illustrations correspond to numbers in the text.
- ← indicates signal flow.
- Notes and cautions are enclosed in boxes.
- On-screen displays for the USA model are used to explain operations requiring on-screen menus.

Unpacking

Check that you have received the following accessories:

- Remote Commander RMT-V130E
- Size AA (R6) batteries (2)
- External antenna connector (1)
- 75-ohm coaxial cable with F-type connectors (1)
- AC power cord (1)
- Audio/Video connecting cable (3 phono to 3 phono) (1)

Overview

Convenience

- **DUAL MODE SHUTTLE ring**
  Allows quick access to a desired scene and playback at various speeds in forward and reverse directions.

On-screen display

- **On-screen display**
  Tape counter, cassette speed, operation mode, and remaining cassette length can be displayed on the TV screen.
- **TIMER SET/CHECK display**
  Timer recording settings can be set and checked by referring to the TV screen.
- **ON SCREEN HELP message**
  The VCR gives a message on screen to warn that you have attempted an incorrect operation.

Functions

- **NOISE REDUCTION function**
  Reduces noise appearing in the picture during playback of a rental tape, etc.
- **Auto tracking function**
  Automatically adjusts the tracking condition for optimum picture quality.
- **Timer recordings of eight programs in a month**
  Recording of up to eight TV programs can be preset up to one month in advance.
- **Auto head cleaner**
  Cleans the video heads each time a cassette is inserted or ejected.

Hookups and Getting Started

Before you can use your VCR for the first time, you need to connect it to your TV and set it up to receive programs for viewing and recording. This section explains how to hook up, set up, and operate your VCR so that you can start enjoying it right away. There are, however, many types of TVs available and many different ways in which your TV can be hooked up. As a result, this manual describes several ways your VCR can be connected.

To hook up your VCR so that it works best for you, first scan through this section to find the diagram that best illustrates the way your TV is currently connected (antenna or cable/cable box). Then use the accompanying diagrams and procedures to complete your VCR's connections.

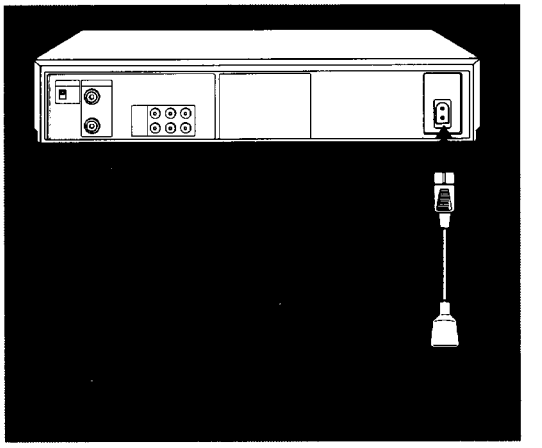
After you've completed the connections, follow the instructions for setup. (During setup, if you need more details of the procedures described, page numbers are provided where you can find complete, step-by-step instructions.)

After you've completed the setup, you're ready to use your VCR. Follow the instructions provided in "To Watch the TV," "To Watch the VCR," and "To Record A Program" for your specific hookup.

(Again, if you need step-by-step instructions, page numbers are provided where you can find this information.)

Before making the connections, check the following points:

- Turn off the power to the VCR and TV.
- Do not connect the AC power cord until all of the connections are completed.



- Make connections firmly. Loose connections may cause picture distortion.
- If your TV doesn't match any of the examples provided, consult your nearest Sony dealer or qualified technician.

Caution
Connections between the VCR VHF/UHF OUT connector and the antenna terminals of a TV receiver should be made only as shown in the instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of RF devices. Never connect the output of the recorder to an antenna or make simultaneous (parallel) antenna and recorder connections at the antenna terminals of your receiver.

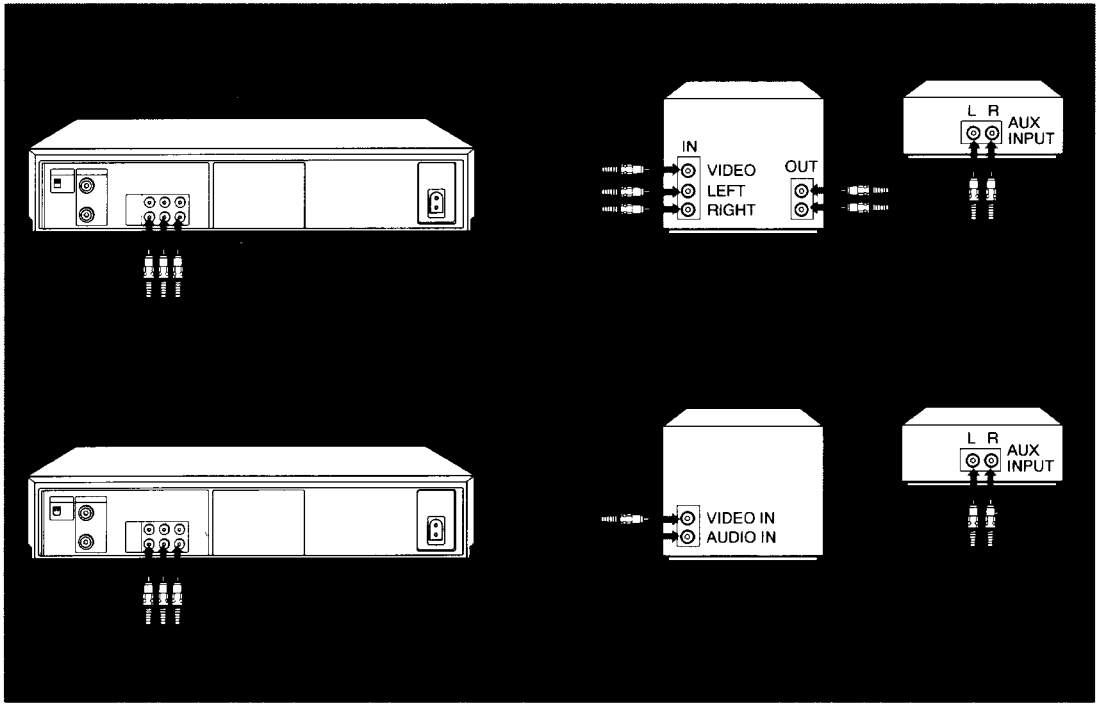
Hookup 1

Audio/Video (A/V) Hookup

If your TV has audio/video (A/V) input jacks, you will get a better picture if you hook up your VCR using these connections. In addition, for a true "home theater" experience, you should connect the audio outputs of your VCR or TV to your stereo system.

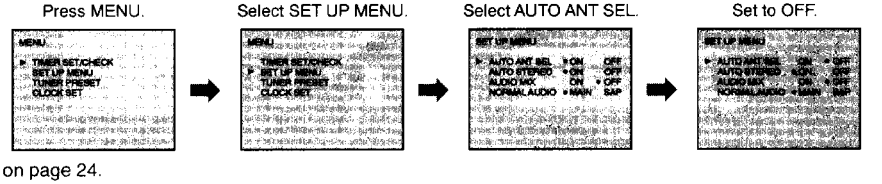
If your TV doesn't have A/V inputs, see the following pages for antenna or cable hookup.

If you only wish to play back pictures and movies, you're finished after you've made these connections. If you want to record off-air or off your cable TV system, please do the A/V hookup on this page first, then proceed to the following pages for antenna or cable hookup.



After you've hooked up your TV using the A/V connections, use the following procedure to set up and use the VCR with your TV.

A/V Setup & Operation
Set AUTO ANT SEL to OFF.

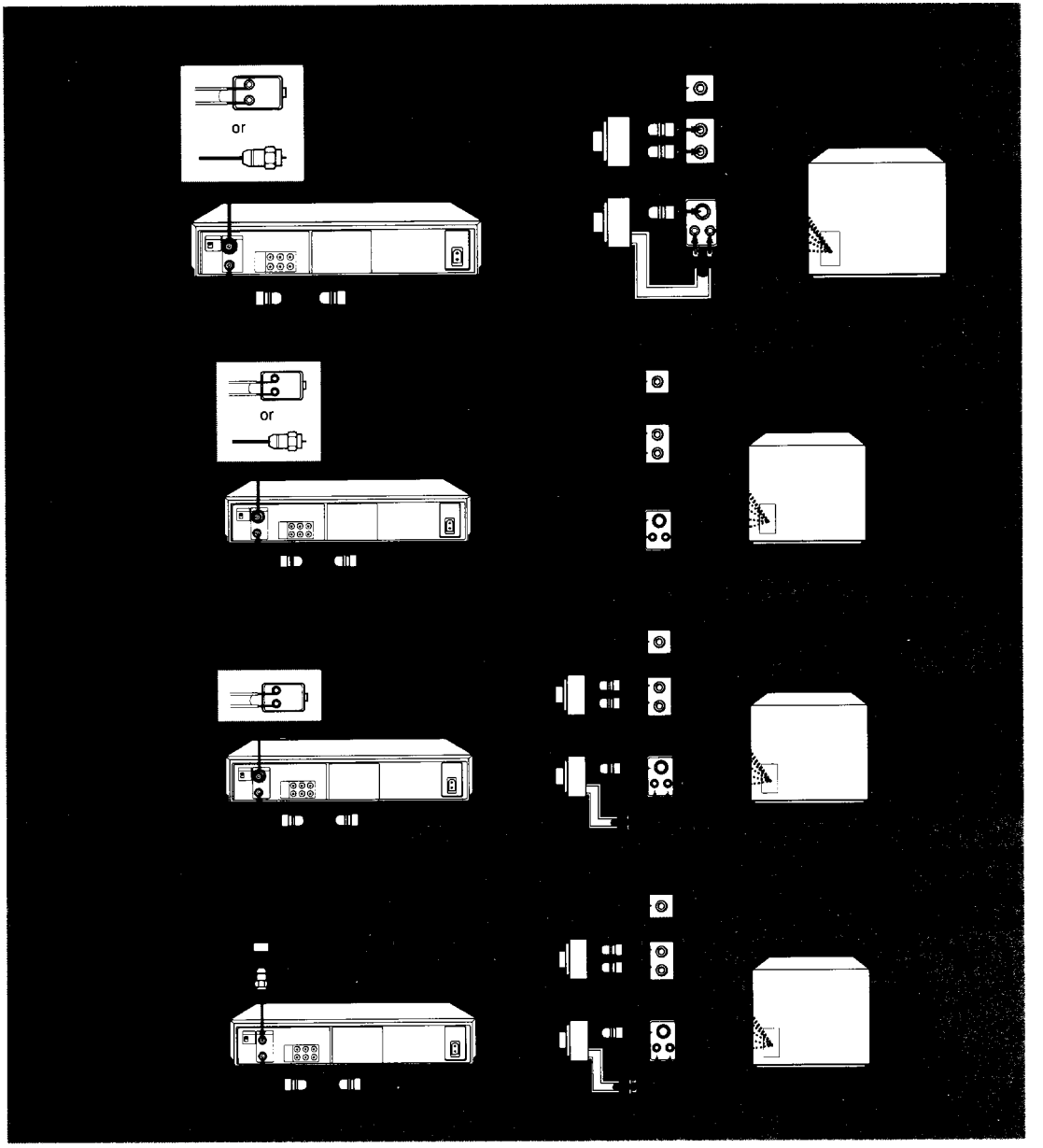


Details are on page 24.

Hookup 2

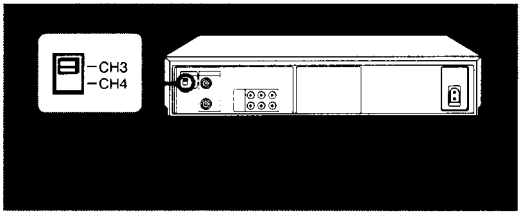
Antenna Hookup

Make the following connections if you're using an antenna (not cable TV). Check the type of antenna you are using and choose the appropriate connection.

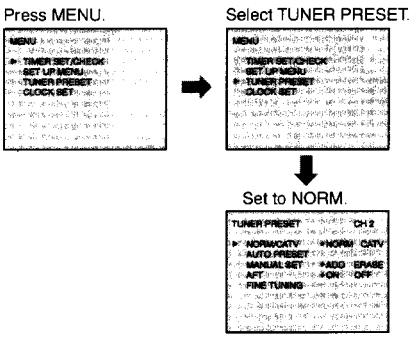


VCR Setup (Antenna)

1 Set the RF Unit on the VCR's rear panel to CH3 or CH4.
If you made A/V connections, skip this step.

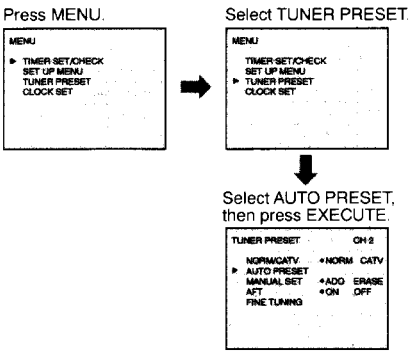


2 Set NORM/CATV to NORM.



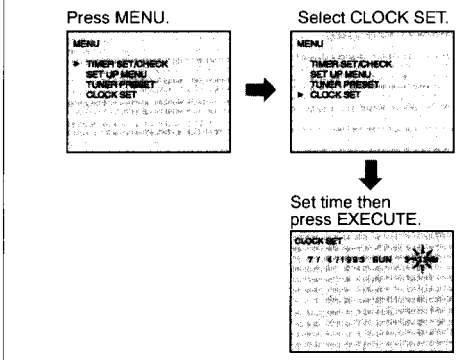
Details are on page 20.

3 Preprogram the channels into the VCR.



Details are on pages 20 and 21.

Clock Setting



Details are on page 18.

To Watch the TV

1 Turn your VCR off, or press the VCR's TV/VTR button until the VTR indicator in the display window goes off.
2 Tune the TV normally.

To Watch the VCR

1 Tune the TV to CH 3 or CH 4, whichever you set on the back of the VCR. (If you made the A/V connections on page 7, set your TV to the A/V input instead.)
2 Insert a cassette and press ▷ PLAY.

Details are on page 26.

To Record a Program

1 Insert a cassette.
2 Press MENU.
3 Select TIMER SET/CHECK.
4 Press EXECUTE.
5 Set DATE, START time, STOP time, channel and tape recording speed.
6 Press EXECUTE and then TIMER REC (ON/OFF).

Details are on pages 34 and 35.

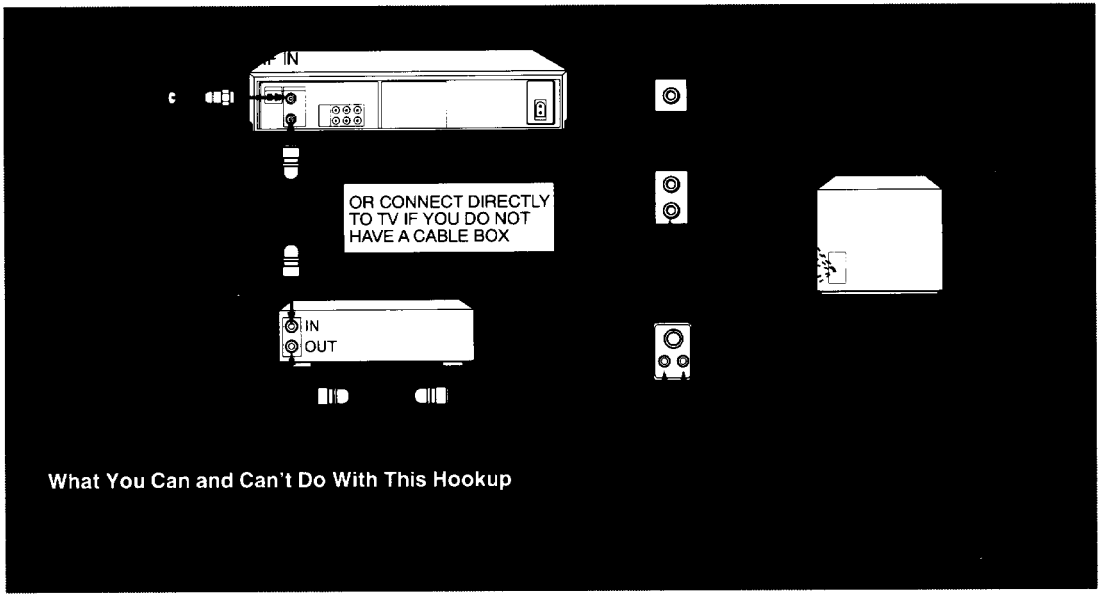
Hookup 3

Simple Cable Hookup

Recommended Use:
Since this is the simplest hookup, we recommend that you try this hookup first. If you cannot record the channels you want, you'll need to change your hookup to one of the choices on the following pages, or contact your cable company for assistance.

Background

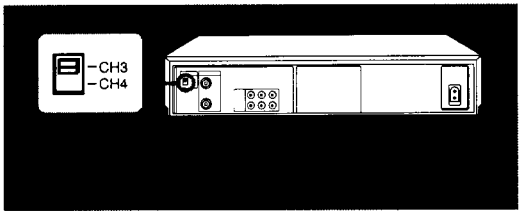
This VCR can record virtually any unscrambled cable channel. Some cable systems "scramble" specific channels, usually premium or pay-per-view channels. You will not be able to record scrambled channels with this hookup.



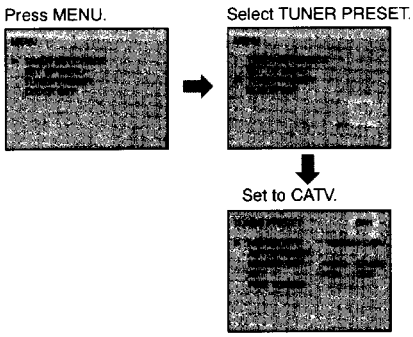
What You Can and Can't Do With This Hookup

VCR Setup (Simple Cable)

1 Set the RF Unit on the VCR's rear panel to CH3 or CH4.
If you made A/V connections, skip this step.

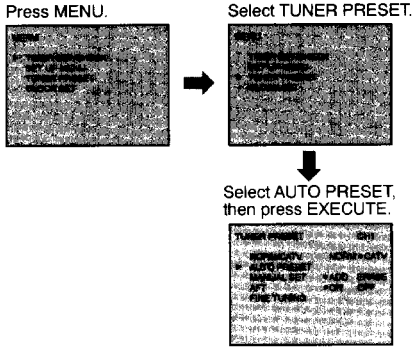


2 Set NORM/CATV to CATV.



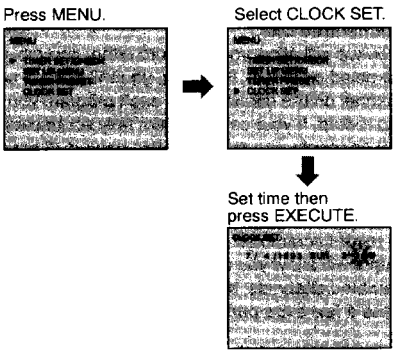
Details are on page 20.

3 Preprogram the channels into the VCR.



Details are on pages 20 and 21.

Clock Setting



Details are on page 18.

To Watch the TV

1 Turn your VCR off, or press the VCR's TV/VTR button until the VTR indicator in the display window goes off.

2 Select the channel with your cable box (if you have one), or directly tune with your TV (if you don't).

To Watch the VCR

1a If you didn't use the A/V input:

- Turn ON the cable box.
- Select CH 3 or CH 4 on the cable box (whichever you set on the back of the VCR).
- Select the output channel of the cable box (usually 2, 3 or 4) on your TV.

1b If you made the A/V connections on page 7:
Set your TV to the A/V input.

2 Insert a cassette and press ▷ PLAY.

Details are on page 26.

To Record a Program

1 Insert a cassette.
2 Press MENU.
3 Select TIMER SET/CHECK.
4 Press EXECUTE.
5 Set DATE, START time, STOP time, channel and tape recording speed.
6 Press EXECUTE and then TIMER REC (ON/OFF).

Details are on pages 34 and 35.

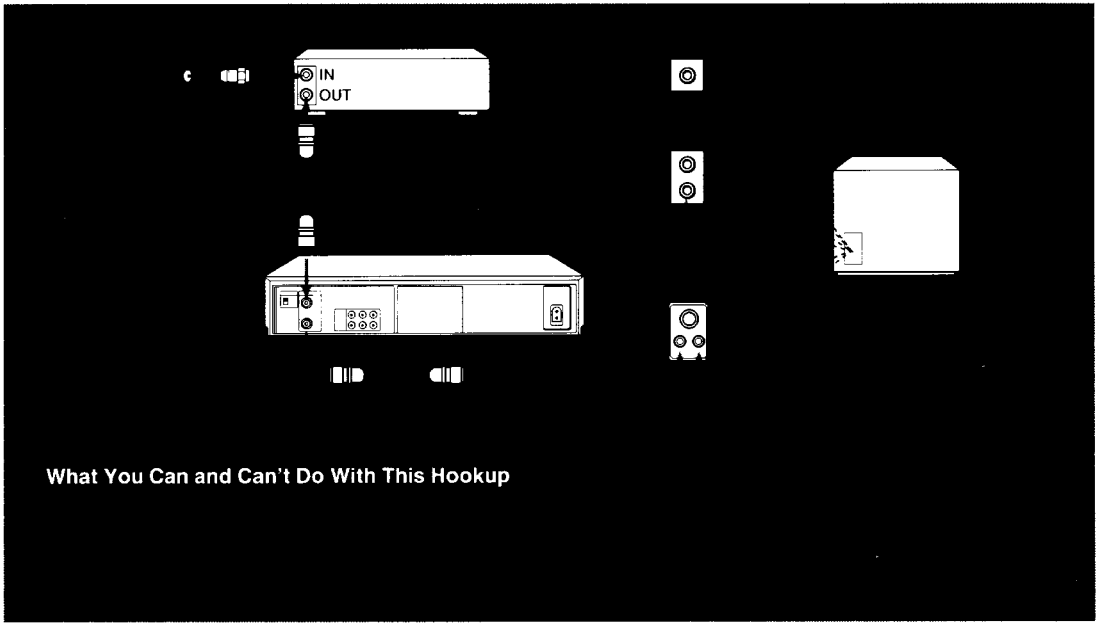
Hookup 4

Alternate Cable Hookup

Recommended Use:
This hookup will allow you to record either scrambled or unscrambled channels. However, you will have to set the channel on the cable box for each program you want to record. If your cable system only scrambles all or most channels, you **must** use this hookup. If your cable system scrambles a few channels, you may prefer **Hookup 3 or 5** (on pages 10 and 14, respectively). Please note that **Hookup 3** will not allow you to record scrambled channels.
Hookup 5 will allow you to record either scrambled or unscrambled channels, but will require that you purchase a few extra parts at your local electronics store.

Background

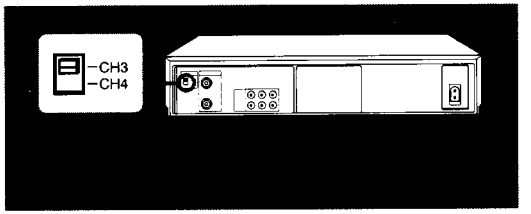
This VCR can record virtually any unscrambled cable channel. Some cable systems "scramble" specific channels, usually premium or pay-per-view channels. Although this hookup will also allow you to record these scrambled channels, you must use the cable box rather than the VCR to select channels.



What You Can and Can't Do With This Hookup

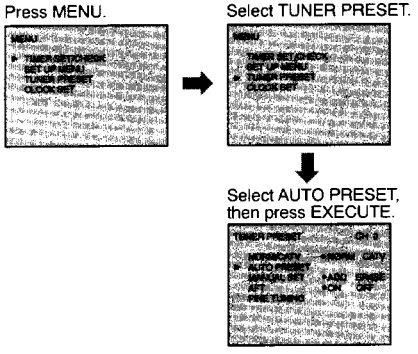
VCR Setup (Alternate Cable)

1 Set the RF Unit on the VCR's rear panel to CH3 or CH4. If you made A/V connections, skip this step.



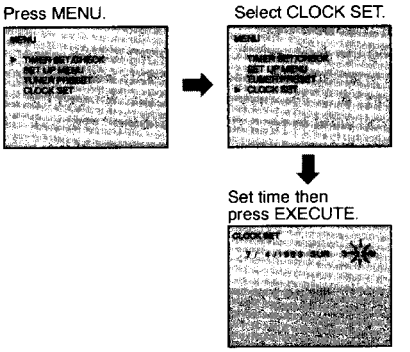
2 Switch on your cable box.

3 Preprogram the channels into the VCR.



Details are on pages 20 and 21.

Clock Setting



Details are on page 18.

To Watch the TV

1 Turn your VCR off, or press the VCR's TV/VTR button until the VTR indicator in the display window goes off.
2 Switch on your cable box.
3 Tune the TV to the cable box output channel (usually 2, 3, or 4).
4 Select the channel that you want to watch with your cable box.

To Watch the VCR

1 Tune the TV to CH 3 or CH 4 (or to A/V input if you made A/V connections).
2 Insert a cassette and press ▷ PLAY.

Details are on page 26.

To Record a Program

1 Insert a cassette.
2 Switch on the cable box.
3 Select the channel you wish to record on the cable box.
4 Press MENU, and select TIMER SET/CHECK, and press EXECUTE.
5 Set DATE, START time, STOP time, Channel and tape recording speed.
The channel number must be the same as the cable box output channel (2, 3 or 4).
6 Press EXECUTE and then TIMER REC (ON/OFF).
7 Leave the cable box ON.

Details are on pages 34 and 35.

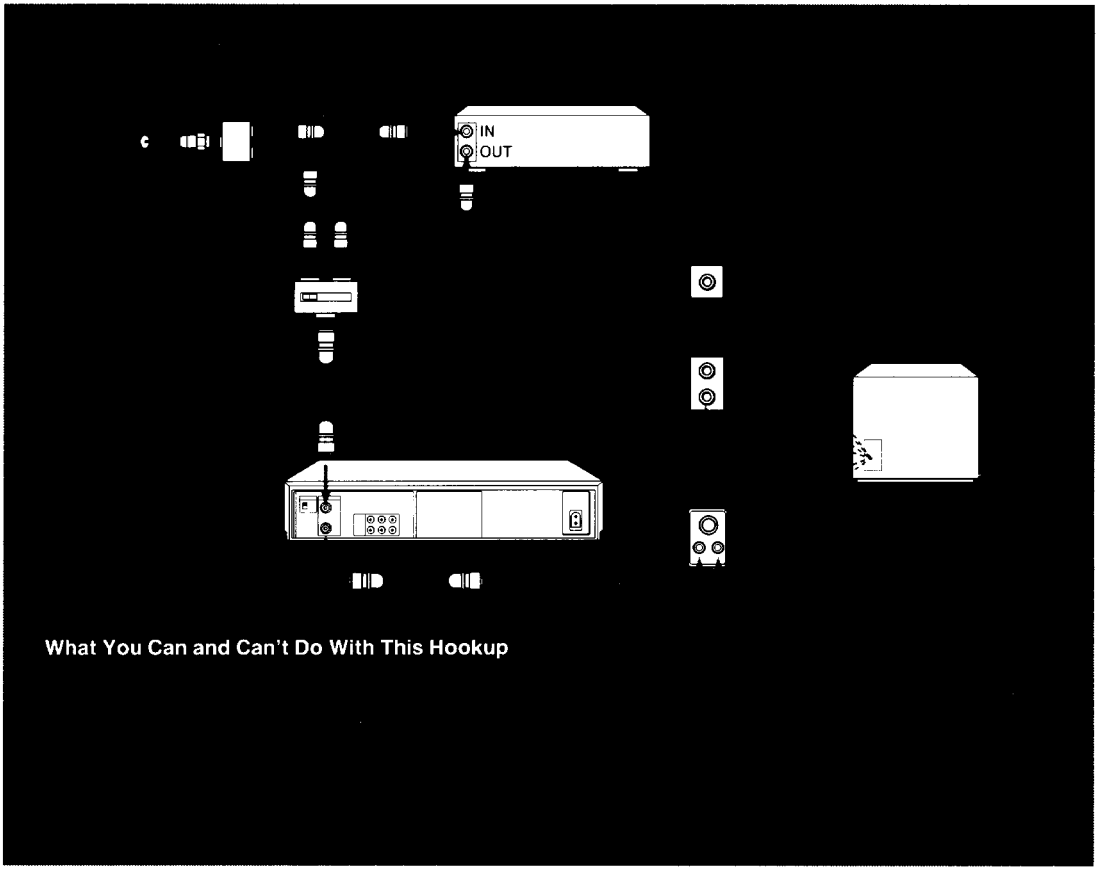
Hookup 5

Advanced Cable Hookup

Recommended Use:
By using the A/B switch, this hookup allows you to record unscrambled channels directly with the VCR (position "A"). You only use position "B" and the cable box if you want to record a "scrambled" channel. This gives you the most convenient operation of the VCR's timer.

Background

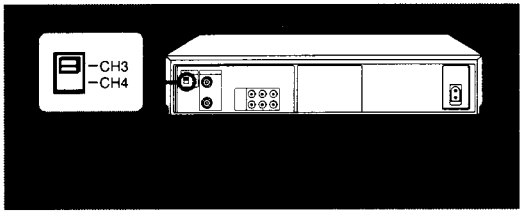
This VCR can record virtually any unscrambled cable channel. Some cable systems "scramble" specific channels, usually premium or pay-per-view channels. This hookup will allow you to record unscrambled channels by selecting "A" on the A/B switch, and tuning the channel directly on your VCR. To record "scrambled" channels, select "B" on the A/B switch, and select the channel using the cable box. If your cable system scrambles all or most channels, you must use the alternate cable hookup **(Hookup 4)** on page 12.



What You Can and Can't Do With This Hookup

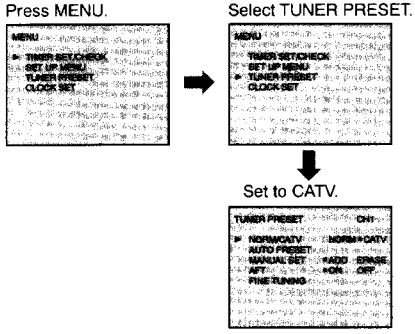
VCR Setup (Advanced Cable)

1 Set the RF Unit on the VCR's rear panel to CH3 or CH4. If you made A/V connections, skip this step.



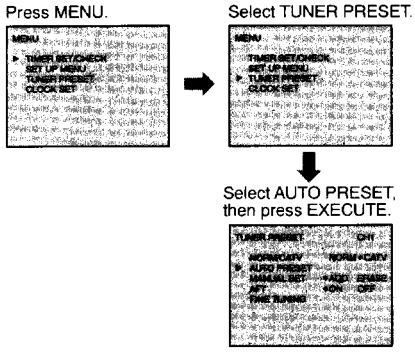
2 Set the A/B switch to 'A'.

3 Set NORM/CATV to CATV.



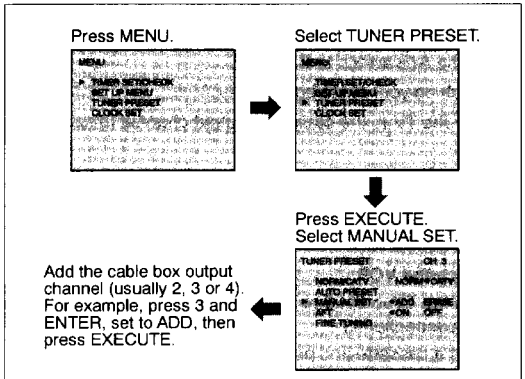
Details are on page 20.

4 Preprogram the channels into the VCR.



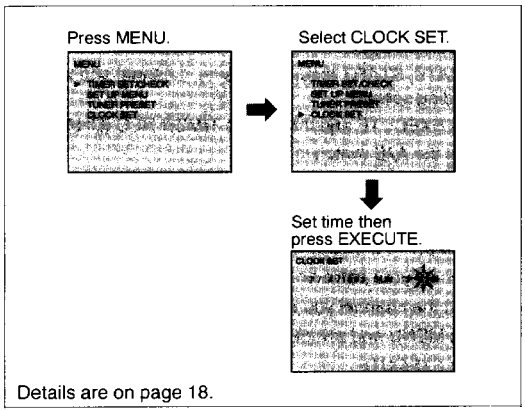
Details are on pages 20 and 21.

5 Add the cable box output channel (usually 2, 3, or 4).


Press MENU.
Select TUNER PRESET.
Press EXECUTE. Select MANUAL SET.
Add the cable box output channel (usually 2, 3 or 4). For example, press 3 and ENTER, set to ADD, then press EXECUTE.

Details are on page 21.

Clock Setting



Details are on page 18.

To Watch the TV

1 Turn your VCR off, or press the VCR's TV/VTR button until the VTR indicator in the display window goes off.
2 Set the A/B switch to B.
3 Switch on your cable box.
4 Tune the TV to the cable box output channel (usually 2,3 or 4).
5 Select the channel you want to watch with your cable box.
6 After watcing the TV, please remember to return the A/B switch and cable box channel to the correct position.

To Watch the VCR

1 Tune the TV to CH 3 or CH 4, (or to A/V input if you made A/V connections.)
2 Insert a cassette and press ▷ PLAY.

Details are on page 26.

To Record a Program Using the Timer

- Unscrambled Channels

1 Insert a cassette.
2 Switch the A/B switch to "A".
3 Press MENU and select TIMER SET/CHECK.
4 Press EXECUTE.
5 Set DATE, START time, STOP time, Channel and tape recording speed.
6 Press EXECUTE and then press TIMER REC (ON/OFF).
7 Leave the A/B switch in "A".

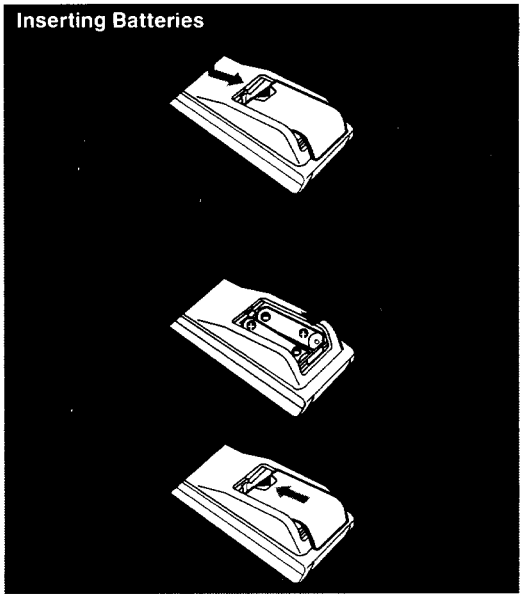
- Scrambled Channels

1 Insert a blank cassette.
2 Switch the A/B switch to "B".
3 Switch on your cable box.
4 Select the channel you want to record on the cable box.
5 Press MENU and select TIMER SET/CHECK.
6 Press EXECUTE.
7 Set DATE, START time, STOP time, Channel and tape recording speed.
The channel number must be the same as the cable box output channel (2, 3 or 4).
8 Press EXECUTE and then TIMER REC (ON/OFF).
9 Leave the A/B switch in "B".

Datails are on pages 34 and 35.

Preparing the Remote Commander/Selecting Language

Inserting Batteries

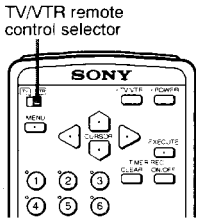


Notes on the handling of batteries

- With normal use, the batteries should last for approximately six months.
- If you do not use the Remote Commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery together with an old one. Do not use different types of batteries.

Setting the TV/VTR Remote Control Selector

You can control both the VCR and some Sony TVs with the Remote Commander. You must set the TV/VTR remote control selector to the "TV" or "VTR" position depending on whether you want to control the VCR or the TV.



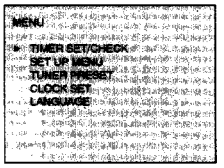
When controlling the VCR;
Set the TV/VTR remote control selector to the "VTR" position.

When controlling a Sony TV
Set the TV/VTR remote control selector to the "TV" position.
The buttons marked with a small yellow dot can be used to control Sony TV sets bearing the mark.

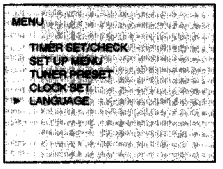
Selecting Language (Only for Canadian Version)

You can set select your VCR to display screen information in either English or French.
Select the menu language before using your VCR following procedure.

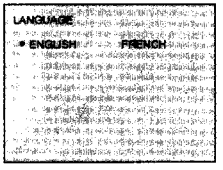
1 Press MENU
The main MENU appears.



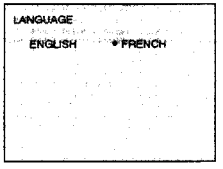
2 Press ▲ or ▼ to move the cursor to LANGUAGE.



3 Press EXECUTE.
The language menu screen appears.



4 Press ◀ or ▶ to select ENGLISH or FRENCH.



5 Press EXECUTE.

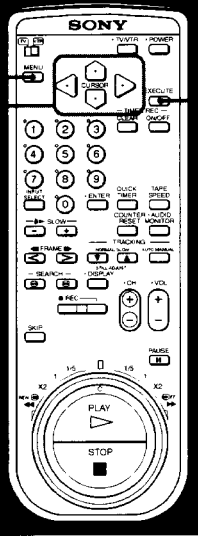
Now that the menu language setting is over, the main MENU appears in your selected language whenever you press MENU.

Setting the Time and Date

You can set the VCR time and date on the TV screen using the Remote Commander.

Example of Time and Date Setting

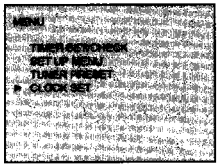
Example: To set to 3:32 pm, July 4, 1993



1 Press MENU.

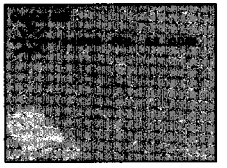
The main MENU appears.

2 Press ▲ or ▼ to move the cursor (▶) to CLOCK SET.

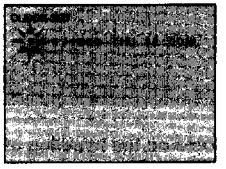


3 Press EXECUTE.

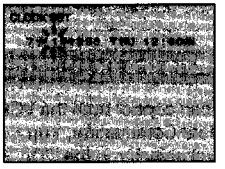
"1/1 1993 FRI 12:00 AM" is displayed. The leftmost 1, in the "month" position, flashes.



4 Press ▲ or ▼ until 7 appears in the month position.

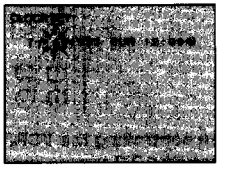


5 Press ▶ to make the next number in the "day" position flash.

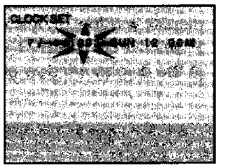


6 Press ▲ or ▼ until 4 appears in the day position.

The day of the week is set automatically.



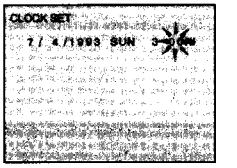
7 Press ▶ to make the year flash and press ▲ or ▼ to change the year.
If you want to leave the year indication unchanged, just press ▶.



8 Press ▶ to make the time flash.

9 Press ▲ or ▼ until 3 PM appears.

10 Press ▶ to make the minutes flash.



11 Press ▲ or ▼ until 32 appears in the minutes position.

12 Press EXECUTE to start the clock.
Pressing EXECUTE will set the clock to 3:32 pm 00 seconds.

NOTES:

- Do not set the time and date during timer-activated recording, timer recording standby or quick-timer recording.
- When the time and date clock is displayed, the clock keeps running as long as no changes are made. The seconds are not reset to 00 when you return to the original screen.

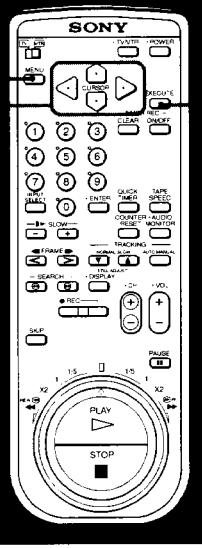
Presetting the Active Channels

This VCR is capable of receiving VHF channels 2 to 13, UHF channels 14 to 69 and CATV channels 1 to 125. These channels can be preset using the Remote Commander and the TUNER PRESET display. First, we recommend that you preset the active channels in your area using the automatic preset mode. Then, if there are any unwanted channels, disable them manually. If you have already decided which channels you wish to preset on the VCR, set them directly using the channel number buttons.

Before presetting channels, check the following points:

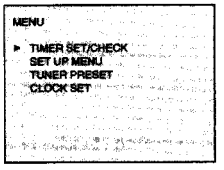
- Turn ON the VCR and the TV.
- If you have connected the TV and the VCR using the VHF/UHF OUT on the VCR only, make sure that the TV is set to the correct channel (CH 3 or CH 4) for the VCR. If you have connected the TV and the VCR using the LINE OUT, select the input for the VCR.
- Press TV/VTR so that the VTR indicator lights up in the display window on the VCR.
- Press INPUT SELECT so that a channel number appears in the display window on the VCR.

Presetting All Receivable Channels Automatically

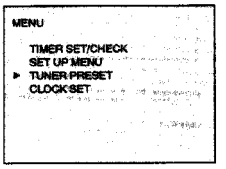


1 Press MENU.

The main MENU appears.

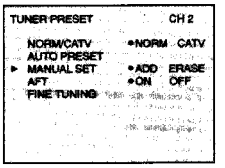


2 Press ▲ or ▼ to move the cursor (▶) to TUNER PRESET.

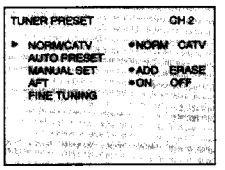


3 Press EXECUTE.

The TUNER PRESET menu is displayed.

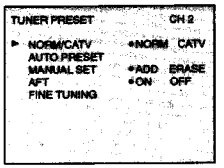


4 Press ▲ or ▼ to move the cursor to NORM/CATV.

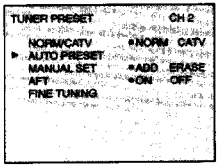


5 Press ◀ or ▶ to select NORM or CATV.

NORM presets the VHF and UHF channels; CATV presets your cable TV channels. The lowest channel number, 2 for NORM and 1 for CATV, will appear on the screen.



6 Press ▲ or ▼ to move the cursor to AUTO PRESET.

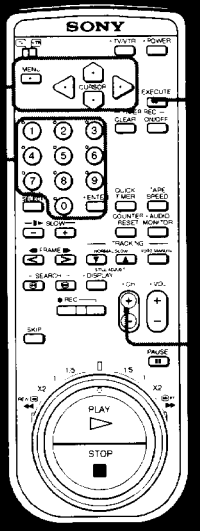


7 Press EXECUTE.

Receivable channels are preset in numerical sequence. When no more channels can be found, the presetting stops and the picture of the lowest numbered channel is displayed on the TV screen.

Presetting Desired Channels or Disabling Unwanted Channels

After automatic presetting, you can disable and/or add channels.

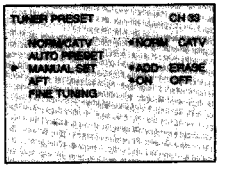


1 Follow steps 1 to 3 in "Presetting All Receivable Channels Automatically" on page 20.

2 Press ▲ or ▼ to move the cursor to MANUAL SET.

3 To disable channels, press CH +/− to select the channel.
To add channels, press channel number buttons (0 to 9) and then the ENTER button to select the channel.

4 To disable channels, press ◀ or ▶ to select ERASE.
To add channels, press ◀ or ▶ to select ADD.



5 Press EXECUTE.

When you press CH +/−, the disabled channels are removed and the added channels are displayed.

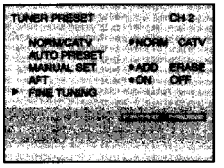
Fine-tuning

Normally, the Auto Fine Tuning (AFT) setting on the TUNER PRESET menu is set to ON, and the AFT function fine-tunes the picture. If the picture of a channel is not acceptable, fine-tune it manually.

1 Display the TUNER PRESET menu referring to steps 1 to 3 in "Presetting All Receivable Channels Automatically" (page 20).

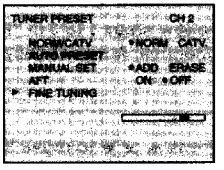
2 Press ▲ or ▼ to move the cursor to FINE TUNING.

The fine tuning indicator is displayed.

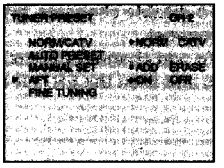


3 Press ◀ or ▶ to get a clearer picture.

The AFT ON/OFF automatically switches to OFF.



4 Press ▲ or ▼ to move the cursor to AFT and select ON if you cannot get a better picture. Then, press EXECUTE.



The FINE TUNING indicator

The FINE TUNING indicator shows the operable fine-tuning range and stops at the optimal point of reception. When the VCR's tuner is receiving an optimal broadcast signal, the indicator stops at the center position or one space right or left of the center position. However, even when a broadcast is received in an optimal condition, the indicator may not be at the position described.

Cable TV Channel Assignment

Cable TV systems use letters or numerals to designate the channels. To tune-in a CATV channel, refer to the chart below which shows the CATV channel numbers on this VCR and the corresponding CATV channel. Note that the channel number assignment shown in the chart may not correspond to the channel number used by your local cable company. Check with your local cable TV company for more information on the available channels.

Number of this VCR	1	2	...	13	14	15	16	17	18
Corresponding CATV channel	A-8	2	...	13	A	B	C	D	E

19	20	21	22	23	24	25	26	27	28	29	30	31	32
F	G	H	I	J	K	L	M	N	O	P	Q	R	S

33	34	35	36	37	...	94	95	96	97	98	99
T	U	V	W	W+1	...	W+58	A-5	A-4	A-3	A-2	A-1

100	...	125
W+59	...	W+84

This VCR is designed to correspond to the standard cable system. However, the cable TV services may vary from area to area. Your local cable TV company may adopt either the HRC or IRC cable system. This VCR is capable of receiving either of these cable systems in the best condition.

1) **HRC (Harmonic Related Carriers)**
   All channels except for 5 and 6 are 1250 kHz lower than the standard cable system. Channels 5 and 6 are 750 kHz higher than the standard cable system.

2) **IRC (Incremental Related Carriers)**
   All channels except for 5 and 6 are the same as the standard cable system. Channels 5 and 6 are 2000 kHz higher than the standard cable system.

FINE TUNING indicator for receiving HRC or IRC cable systems

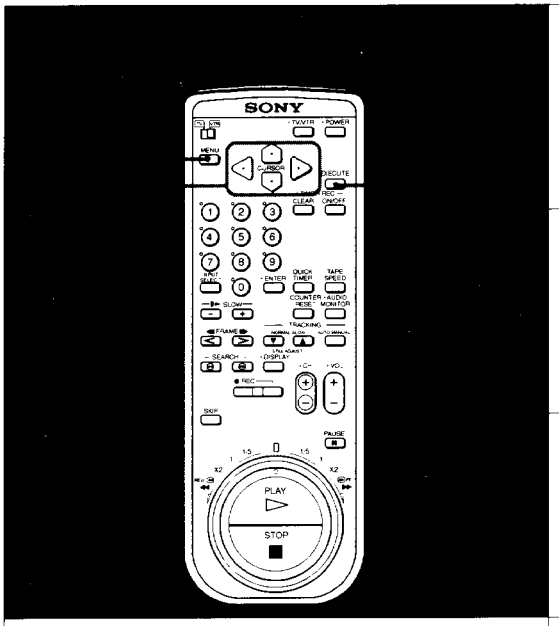
Even when the signals are received in optimal condition, the FINE TUNING indicator will not stay at the center position for channels higher or lower than the standard cable system due to the difference in the frequency.

NOTE:

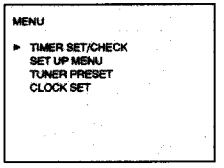
Many cable TV systems use scrambled or encoded signals for some channels. You may require a cable box to receive some or all channels.

Using The SET UP MENU

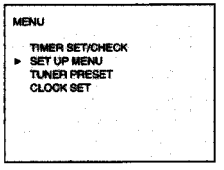
Before using your VCR, make your preferred audio and video display choices from the SET UP MENU.



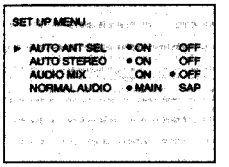
1 Press MENU.
The main MENU appears.



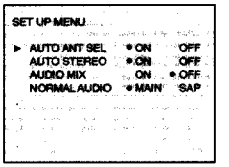
2 Press ▲ or ▼ to move the cursor (▶) to SET UP MENU.



3 Press EXECUTE.
The SET UP MENU appears.



4 Press ▲ or ▼ to move the cursor to the desired menu choice. (For Menu Choices, see the next page.)
Next, press ◀ or ▶ to change the mode setting to ON or OFF.



5 Press ◀ or ▶ to move the dot (●) to the desired setting.

6 Press EXECUTE to return to the original screen. The settings are stored. The displayed page is stored unless the power plug is disconnected.

Menu Choices

AUTO ANT SEL (Automatic Antenna Selector)

- If your TV is connected only to VHF/UHF OUT on the VCR, set to ON.

When playing back a cassette, the picture is automatically displayed on the screen simply by selecting the channel for the VCR on the TV. To watch TV programs selected on the TV, press TV/VTR to turn off the VTR indicator in the display window.

- If your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR, set to OFF.

When playing back a cassette, select the input for the VCR on the TV.
To watch TV programs selected on the TV, select the tuner input.

AUTO STEREO

If a stereo program's reception is poor, set to OFF. The program is recorded in monaural but sound quality may improve. For details, see page 33.

AUDIO MIX

To listen to sound recorded on both the Hi-Fi video track and the normal audio track of the audio tape, set to ON. For details, see page 30.

NORMAL AUDIO

When there is a SAP (Second Audio Program) broadcast, select SAP to record the SAP sound on the normal audio track. For details, see page 33.

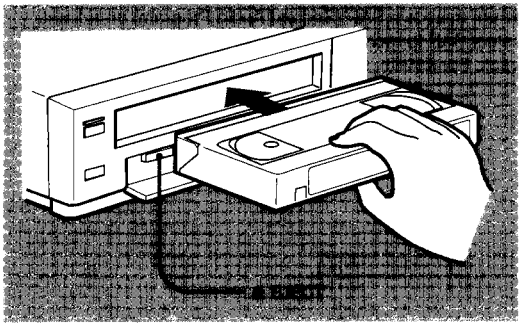
Playback

This section shows you how to play back a video cassette.

Inserting a Video Cassette

1 Insert a video cassette as shown below.

2 Gently press the center of the front side of the cassette until the mechanism draws it into the compartment.
When the cassette has been loaded, the cassette indicator ( ) lights up in the display window and the VCR turns on automatically.



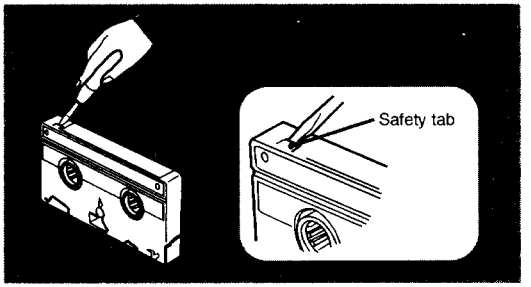
NOTE:
If you insert a cassette without a safety tab, playback starts automatically (auto playback function).

Ejecting the cassette

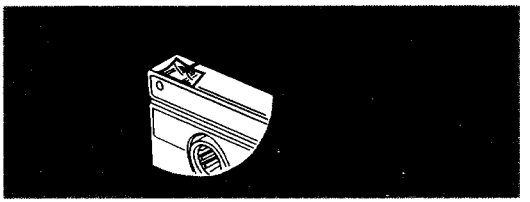
Press ⏏ EJECT on the VCR. You can eject the cassette when the power is off.
When you press ⏏ EJECT, the power is turned on. After ejecting the cassette, the power automatically shuts off.

Protecting your cassettes against accidental erasure

Cassettes have a safety tab to protect against accidental recording. Break off the safety tab with a screwdriver or other tool. If the safety tab is removed, the cassette will be ejected when you try to record on it.



To record on a cassette with the safety tab broken off, simply cover the tab hole with adhesive tape.



Maximum recording time of a cassette

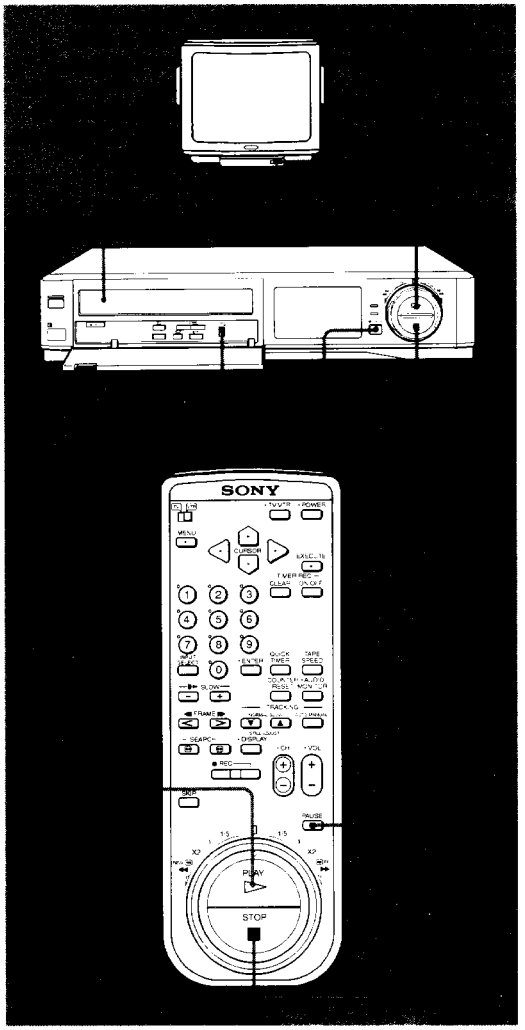
Recording in either the SP or EP mode is possible with this VCR. When recording, select the desired recording mode (SP or EP) using TAPE SPEED on the Remote Commander. During playback, the VCR automatically detects the recording format, and then plays back the cassette in the appropriate mode. A cassette recorded in the EP mode runs three times as slowly as a cassette recorded in the SP mode. Refer to the chart below for the recording/playback times available.

Cassette tape	Recording/Playback time	
	SP mode	EP mode
T-160	2 hr. 40 min.	8 hr.
T-120	2 hr.	6 hr.
T-60	1 hr.	3 hr.
T-30	30 min.	1 hr. 30 min.

Cassettes recorded in LP mode

Playback of cassettes recorded in LP mode is also possible with this VCR. However, playback in modes other than normal forward speed is not guaranteed. This VCR is not designed to record in the LP mode.

Playback



1 Insert a cassette.

2 Turn on the TV.

3 If your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR, select the input for the VCR. If your TV is connected only to the VHF/UHF OUT on the VCR, select the channel for the VCR (CH 3 or CH 4).

4 Press ▷ PLAY.

To stop playback:
Press ■ STOP.

To stop playback for a moment:
Press ❚❚ PAUSE.
Press ❚❚ PAUSE again or ▷ PLAY to resume playback.

To fast-forward the cassette during stop mode:
Turn the DUAL MODE SHUTTLE ring to the right (▶▶).

To rewind the cassette during stop mode:
Turn the DUAL MODE SHUTTLE ring to the left (◀◀).

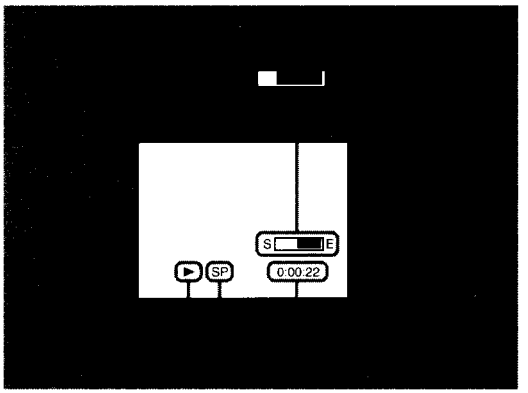
To rewind the cassette to its beginning and to playback automatically (auto playback function):
You cannot use the Remote Commander for the auto playback function.
Press ▷ PLAY while after fully turning the DUAL MODE SHUTTLE ring to the left (◀◀).

To reduce noise on old, worn tapes or rental tapes:
Set the NOISE REDUCTION switch to ON.

When the cassette reaches the end:
The cassette automatically rewinds to the beginning (auto rewind), and power remains on.

The On-Screen Display

To delete or call up VCR information on the TV screen, press DISPLAY on the Remote Commander.

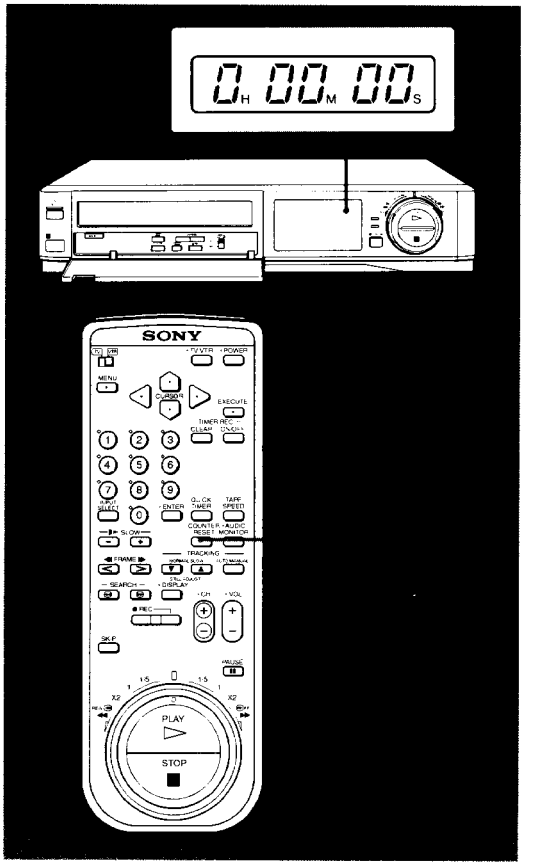


NOTES:

- The remaining tape length displayed is approximate. Therefore, use it only as an approximate reference.
- When you insert a cassette with a short tape length such as T-20, T-30 or a non-standard commercially available cassette, this indicator may not function correctly.
- The data screen display cannot be displayed on the screen during still mode, slow motion playback or high-speed playback.

Indexing Tape Contents

When a cassette is inserted, the clock display will be automatically switched to the counter display and the counter reading "0H00M00S" will appear in the display window. If you want , however, to reset the counter to zero, press COUNTER RESET on the Remote Commander. By noting the setting, you can find that point later by referring to the counter. Use the label on the cassette to list the programs and their counter readings.

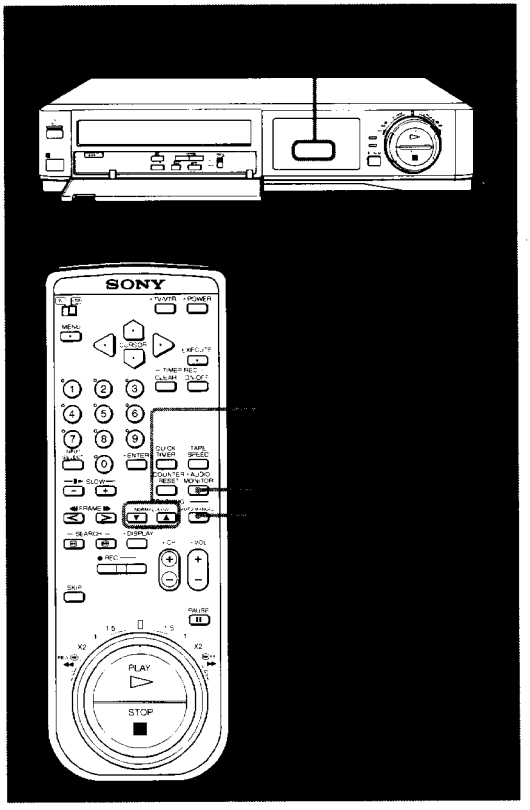


NOTES ON COUNTER READING:

- After a cassette is ejected, the counter display will be automatically switched to the clock display. When a cassette is reinserted the counter display will appear and show the counter reading "0H00M00S".
- The counter does not work properly on the portions on which no recording has been made.

Playing Back Externally-Recorded Tapes

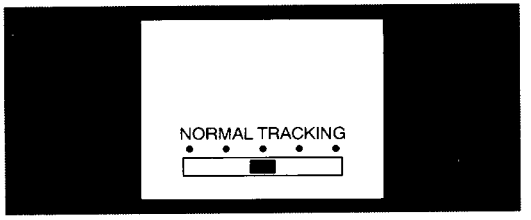
When playing back a cassette recorded on another VCR, the tracking condition is automatically adjusted and the picture sharpness is set to an optimum condition. You can also adjust the tracking condition manually according to the following instructions.



Manual tracking adjustment

When the playback picture has streaks or snow during normal playback, adjust the picture manually with TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲.

Press either ▲ or ▼ for the best possible picture. The tracking meter will appear on the TV screen and the AUTO TRACKING indicator will turn off.



Automatic tracking adjustment

The tracking condition is automatically adjusted on this VCR. The AUTO TRACKING indicator flashes while the VCR is searching for the optimal tracking condition and lights when optimum playback picture is obtained. The automatic tracking control is activated in the following conditions:

- When the cassette is inserted for the first time
- When the recording mode on the playback cassette is switched from SP to EP and back again
- When the picture is distorted by scratches on the tape
- When the AUTO TRACKING indicator is turned on by pressing TRACKING AUTO/MANUAL after the picture is adjusted manually

NOTES:

- Auto tracking adjustment is not possible for cassettes recorded in LP mode.
- During auto tracking adjustment, streaks or noise may occur.

Selecting the Monitor Sound

You can play back cassettes on which stereo sound or bilingual programs are recorded.
Press AUDIO MONITOR to select the desired sound mode. Each press of the button changes the display on the VCR.

NOTE:

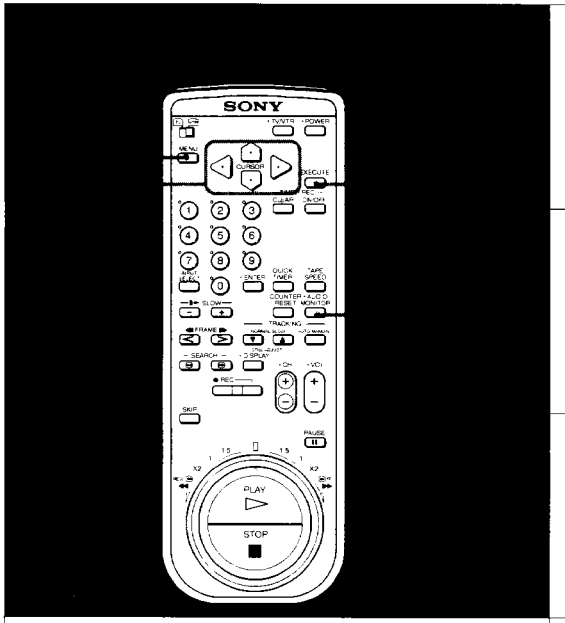
When you play back a cassette recorded in monaural, the sound is heard in monaural regardless of the setting of the AUDIO MONITOR.

Sound Mode

STEREO lamp	Display	Sound to be heard	
		Stereo tape	Bilingual tape
lit	None	Stereo	Left and right channels
lit	L	Left channel	Left channel
lit	R	Right channel	Right channel
Unlit	None	Monaural on normal audio track	Sound on normal audio track (SAP)

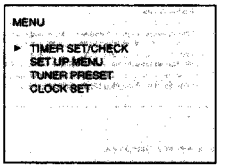
Listening to Mixed Hi-Fi and Normal Track Sound

You can hear sound recorded on the hi-fi video track and the normal audio track simultaneously. This allows you to listen to an audio-inserted cassette.

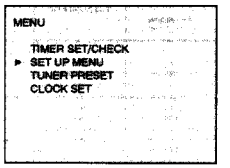


1 Press MENU.

The main MENU appears.

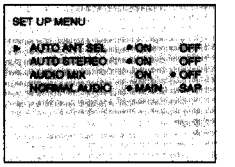


2 Press ▲ or ▼ to move the cursor (▶) to SET UP MENU.

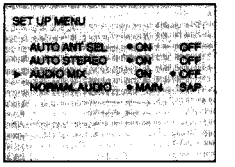


3 Press EXECUTE.

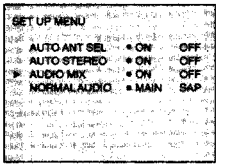
The SET UP MENU appears.



4 Press ▲ or ▼ to move the cursor to AUDIO MIX.



5 Press ◀ or ▶ to move the dot (●) to ON.



6 Press EXECUTE to return to the original screen.

NOTES:

- When you set AUDIO MIX to ON, the AUDIO MONITOR button does not function.
- Reset to OFF after listening to the sound in audio mix mode.

Recording TV Programs

Before you begin, check the following points:

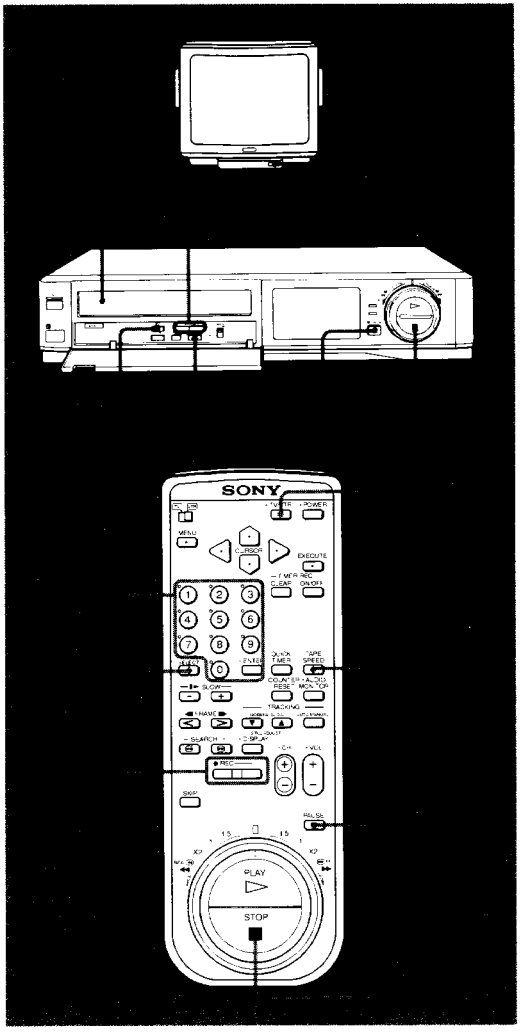
- Make sure that the connections have been made correctly (see pages 6 to 14).
- Check the input mode indicator in the display window of the VCR.

  Press INPUT SELECT so that the LINE indicator disappears and the channel number appears in the display window.

CAUTION:

Television programs, films, video cassettes and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provisions of the copyright laws. Also, use of this recorder with cable television transmission may require authorization for the cable television and/or program owner.

Recording TV Programs



1 Insert a cassette.
The VCR turns on automatically (auto power on).

2 Turn on the TV.

3 If your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR, select the input for the VCR.

4 If your TV is connected only to VHF/UHF OUT, set the TV to the correct channel (CH 3 or CH4), then press TV/VTR so that the VTR indicator lights up in the display window.
Skip this step if your VCR is connected to both the VHF/UHF OUT and LINE OUT.

5 Select the channel to be recorded with CHANNEL +/− or channel number buttons and press ENTER.

6 Select SP or EP with TAPE SPEED (SP/EP) on the Remote Commander.

To select the best recording tape speed, see "Maximum recording time of a cassette" on page 26.

7 Press the two ● REC buttons on the Remote Commander at the same time, or the ● REC button on the VCR.

To stop recording:

Press ■ STOP.

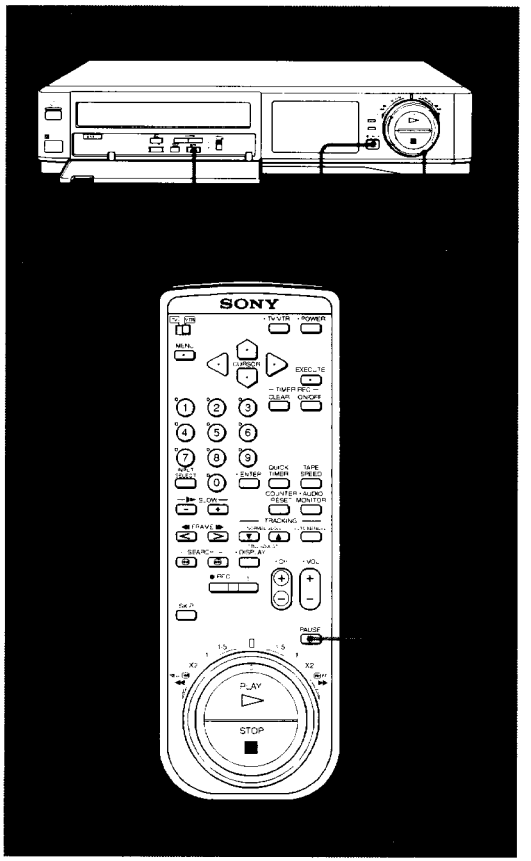
To pause the cassette:

Press II PAUSE. To resume recording, press II PAUSE. When the recording pause mode lasts for approximately 5 minutes, the VCR enters the stop mode.

When the cassette reaches its end:

The cassette rewinds to the beginning and the power remains on.

Pausing



Technique 1

You can stop recording an unwanted scene and resume recording smoothly.

1 **Press II PAUSE when an unwanted scene appears.**
Recording will stop and the VCR enters the recording pause mode.

2 **Press II PAUSE at the desired point to release the pause mode.**
Recording resumes from the point set in step 1.

Technique 2

When an unwanted scene has already started recording, you can return the cassette to the desired point, have the VCR standby in the recording pause mode, and resume recording at the desired scene. **This feature is only available on the VCR.**

1 **Press II PAUSE to set the VCR to the recording pause mode.**

2 **Turn the DUAL MODE SHUTTLE ring to the left to search for the point from which you wish to continue recording.**

3 **Release the DUAL MODE SHUTTLE ring at the desired point.**
After an instant in still mode, the VCR automatically enters the recording pause mode.

4 **Press II PAUSE.**
Recording resumes.

Recording with the TV Off

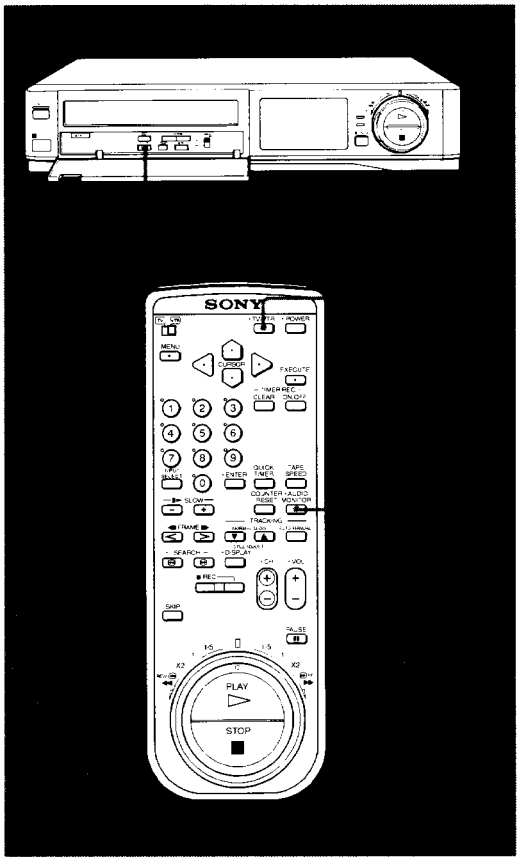
Turn off the power of the TV or color monitor.
There will be no interference with the recording.

Watching One TV Program While Recording Another

1 Press TV/VTR so that the VTR indicator goes off.
Skip this step if you have connected the TV and the VCR using the LINE OUT.

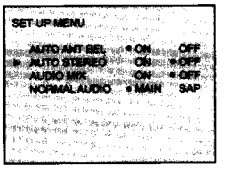
2 Select the channel you want to watch on the TV.

VTR Indicator	Picture on the TV Screen
Lit	Channel selected by the VCR or the playback picture of the VCR
Unlit	Channel selected by the TV



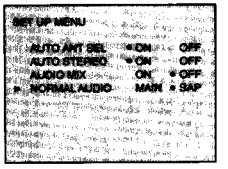
Recording Multi-channel TV Sound (MTS) Broadcasts

To record a stereo broadcast:
When a stereo broadcast program is received, the STEREO lamp lights up on the front panel of the VCR. The stereo program is automatically recorded in stereo. If a stereo program's reception is poor, set AUTO STEREO to OFF in the SET UP MENU. (See page 25.) The sound is heard in monaural but the noise is reduced.



To record SAP (Second Audio Program) broadcast:
Normally, set NORMAL AUDIO to MAIN in the SET UP MENU. The main sound is recorded on the normal track. To record the SAP sound on the normal audio track, set NORMAL AUDIO to SAP in the SET UP MENU.

To monitor the SAP sound during recording, press AUDIO MONITOR to light the SAP lamp on the front panel of the VCR.



NOTES:

- When not recording a SAP broadcast, select MAIN. If you select SAP, no sound is recorded on the normal audio track.
- When the TV is connected only to the VHF/UHF OUT on the VCR, you cannot hear the program in stereo.

Timer Recording

The timer recording function lets you preset your VCR to record up to eight programs within a one-month period. You'll do this procedure from the TIMER SET/CHECK display on your TV.

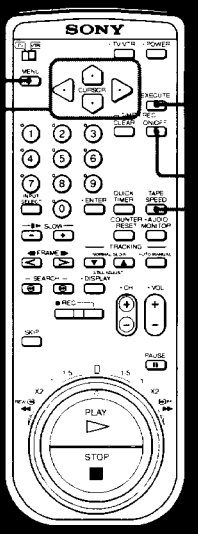
As a First Step

Before setting the timer, make sure that:

- The time and date clock is set correctly.
  If you intend to put the VCR into timer-activated recording mode without having preset the time and date, the VCR will enter clock setting mode automatically.
  (See "Setting the Time and Date" on page 18).
- The cassette is long enough to record all the programs.
- The safety tab on the cassette is intact. If you insert a cassette with no safety tab and press TIMER REC (ON/OFF), the cassette automatically ejects from the VCR.
- The VCR and TV are both turned on.

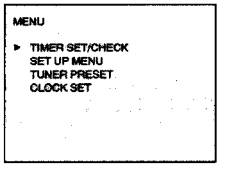
Setting The Timer

EXAMPLE: Here's how to record a program broadcast on channel 26 from 9:00 pm to 10:55 pm on Saturday, July 10, 1993 in EP mode:

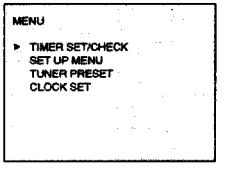


1 Press MENU.

The main MENU appears.

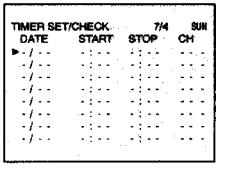


2 Press ▲ or ▼ to move the cursor (▶) to TIMER SET/CHECK.



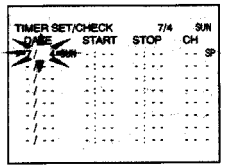
3 Press EXECUTE.

The TIMER SET/CHECK display appears on the screen. To reset the clock, refer to "Setting the Time and Date" (page 18).



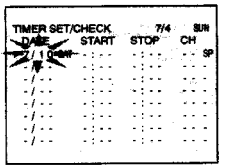
4 Press ▶.

Make sure that today's date is flashing. If it isn't, reset the clock to the correct time. See "Setting the Time and Date" (page 18).

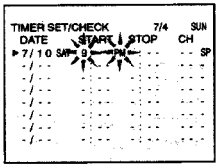


5 Press ▲ or ▼ to set the month and date to 7/10 SAT.

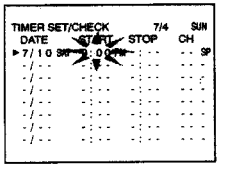
The day of the week is automatically set.



6 Press ▶ to flash the hours section under "START." Then press ▲ or ▼ until 9 PM appears.

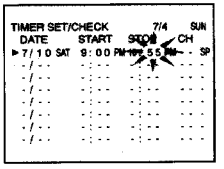


7 Press ▶ to flash the minutes under "START." Then press ▲ or ▼ until 00 appears.



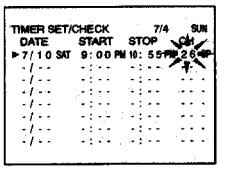
8 Press ▶.

The cursor blinks in the time field under the "STOP" column. Set the time to finish recording, referring to steps 6 and 7.



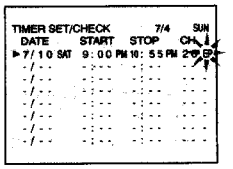
9 Press ▶ to flash the "CH" field, then press ▲ or ▼ until 26 appears.

Only the channels preset in the VCR will appear. You can also use the CHANNEL +/− or channel number buttons.



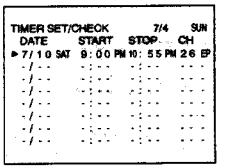
10 Press ▶ to flash the recording speed position, then ▲ or ▼ or TAPE SPEED until EP appears.

To change or correct a setting before entering it, press ◀ to return to the item you wish to change.



11 Press ▶ to store the setting.

When all of the settings stop flashing and a ▶ appears in the leftmost column, you've completed the setting. To preset another program, press ▲ or ▼ to move the cursor to the next line and repeat steps 4 to 11.



12 Press EXECUTE.

The message "PLEASE PUSH TIMER REC TO SET TIMER" appears on the TV screen.

13 Press TIMER REC (ON/OFF).

The VCR enters the timer recording standby mode and the TIMER REC (recording) indicator in the display window lights up.
If a cassette is not loaded into the VCR, the TIMER REC (recording) indicator will not light up in the display window, but the timer program will be stored in the VCR.

To stop timer recording:

To stop timer recording while a program is being recorded, press TIMER REC(ON/OFF).

NOTES:

- To change or correct the setting before completing it, press ◀ to return to the item you wish to change.
- To record video sources from LINE IN jacks, press INPUT SELECT in step 9 to move the screen cursor to LINE in the "CH" field. This cursor returns to channel number on the second press.

Daily/Weekly Recording

You can preset your VCR for daily or weekly recording. Daily recording records the same program every day of the week while weekly recording records the same program on the same day, every week. Follow steps 1 to 4 in "Setting the Timer" (page 34).
Each time you press ♥, the indicator under the "DATE" column changes to one of these choices:

CURRENT — date ←
↓
SUN — SAT (Every day of the week)
↓
MON — SAT(Every day except Sunday)
↓
MON — FRI (Every day except Saturday and Sunday)
↓
EVERY SAT
.
.
.
EVERY TUE
↓
EVERY MON
↓
EVERY SUN
↓
Date one month after from the current date

The Timer Recording Standby Mode

When you return the VCR to the timer recording standby mode, you can record any previously preset programs. The VCR turns on automatically to record the first preset program. When it finishes recording, the power automatically shuts off.
To stop timer recording, press TIMER REC (ON/OFF).

Buttons Operable During Timer Recording

TIMER REC (ON/OFF)	To stop timer recording. (See page 35.)
COUNTER RESET	(See "Indexing Tape Contents," page 28.)
TV/VTR	(See "Watching One TV Program While Recording Another," page 33.)
DISPLAY	(See "The On-Screen Display," page 28.)
MENU	For checking the programs only. (See "Checking the Timer Settings," page 38.)

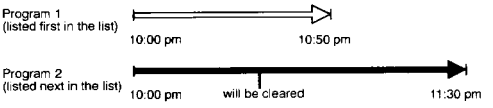
NOTE:

If a power interruption occurs during timer recording, recording will stop and your VCR will turn off. If power is restored within three hours and it's before the recording end time, recording will start again from that point. If the interruption lasts for more than three hours, any presettings will be erased and you'll need to reset the time and date for your programs. Note that the tape counter will return to "0H00M00S".

Overlapping Timer Recordings

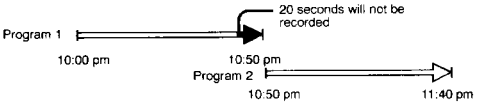
Case 1
If you preset two programs to record at the same time...

The program listed first on the TIMER SET/CHECK display has priority over the other programs. The timer settings for lower priority programs will be deleted from the TIMER SET/CHECK display when recording begins for the first program.



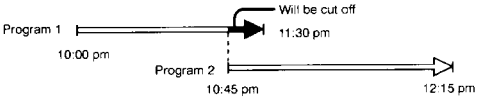
Case 2
If you preset program 2 to record at the same time you set program 1 to finish recording...

The last 20 seconds of program 1 will not be recorded.



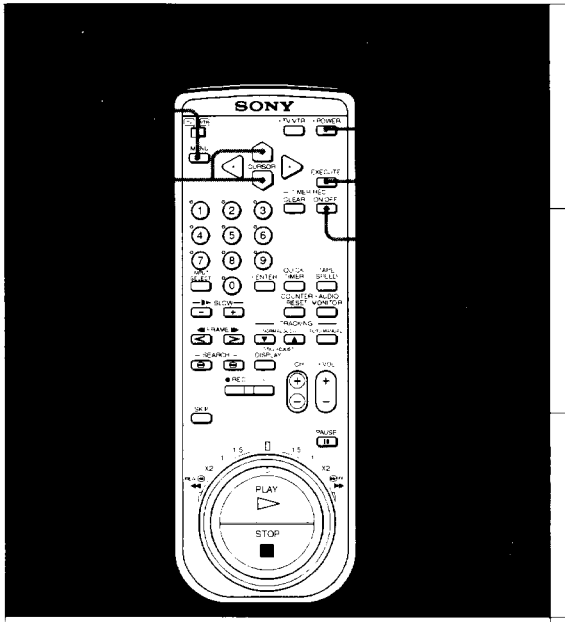
Case 3
If you preset program 2 to record before program 1 has finished recording...

Program 2 will begin recording before program 1 has finished.



Checking the Timer Settings

Here's how to display your timer settings to confirm the programs you wish to record.



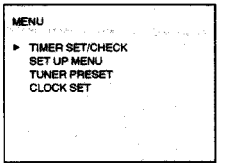
1 Press TIMER REC (ON/OFF).

The TIMER REC (recording) indicator in the display window turns off.

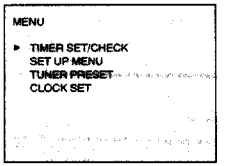
2 Press POWER.

3 Press MENU.

The main MENU appears.

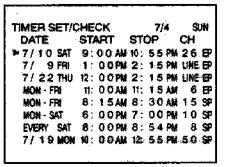


4 Press ▲ or ▼ to move the cursor (►) to TIMER SET/CHECK.



5 Press EXECUTE.

The TIMER SET/CHECK display appears.


TIMER SET/CHECK 7/4 SUN
DATE START STOP CH
► 7/10 SAT 9:00 AM 10:55 PM 26 EP
7/ 9 FRI 1:00 PM 2:15 PM LINE EP
7/22 THU 12:00 PM 2:15 PM LINE EP
MON-FRI 11:00 AM 11:15 AM 6 EP
MON-FRI 8:15 AM 8:30 AM 15 SP
MON-SAT 6:00 PM 7:00 PM 10 SP
EVERY SAT 8:00 PM 8:54 PM 8 SP
7/19 MON 10:00 AM 12:55 PM 50 SP

6 Press EXECUTE to return to the original screen.

7 Press TIMER REC (ON/OFF).

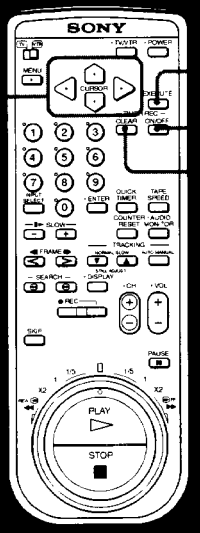
The VCR returns to the timer recording standby mode.

NOTES:

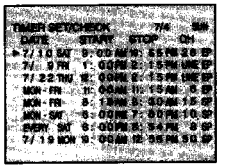
- If you set a program to record only one time, that setting is erased from the TIMER SET/CHECK display when the recording has finished.
- To check the timer settings during timer recording, follow steps 3 to 6 above.

Changing or Cancelling the Timer Settings

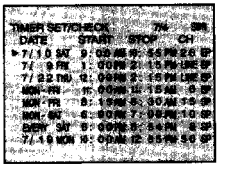
Here's how to change or cancel any timer settings from the TIMER SET/CHECK display:



1 **Display the TIMER SET/CHECK menu on the TV screen by following the procedures outlined in "Checking the Timer Settings" on page 38.**



2 **Press ▲ or ▼ to move the cursor (▶) to the program you wish to change or cancel.**



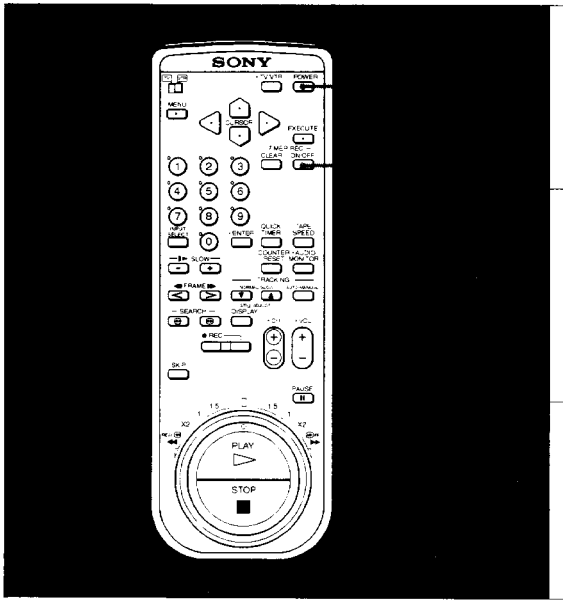
3 **To change a program, select the item to be changed by pressing ◀ or ▶, then make changes pressing ▲ or ▼.**
To cancel it, press TIMER CLEAR.
Repeat this step to change or cancel other settings.

4 **Press EXECUTE.**
This stores the changes and returns you to the original screen.

5 **Press TIMER REC (ON/OFF).**
This returns you to the timer recording standby mode.

Using the VCR Before Timer Recording Starts

If you want to use your VCR while it's in the timer recording standby mode, you must first turn off the TIMER REC (recording) indicator in the display window. Here's how:



1 Press TIMER REC (ON/OFF).

The TIMER REC (recording) indicator in the display window turns off and the VCR leaves the timer recording standby mode.

2 Press POWER.

The VCR is ready to use.

3 After using the VCR, press TIMER REC (ON/OFF).

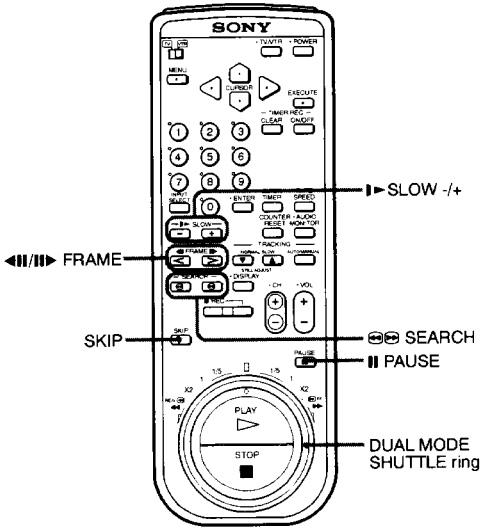
The VCR returns to the timer recording standby mode and the TIMER REC (recording) indicator lights up.

Variable Speed Playback

The following section explains the advanced playback functions you can use with your VCR.

Variable Speed Playback

Using the DUAL MODE SHUTTLE ring on your VCR or Remote Commander, you can play cassettes at a variety of forward and reverse speeds. You can also freeze a picture using the pause function.



Still Picture

When playing back a cassette, press II PAUSE to hold the picture in one place. To resume normal playback, press either ▷ PLAY or II PAUSE. If you leave your VCR in the pause mode, normal playback resumes after approximately 5 minutes.

Picture Search

By turning the DUAL MODE SHUTTLE ring either clockwise for forward viewing or counterclockwise for viewing in reverse, you can control the cassette playback speed.

- **Picture Search During Playback or Pause Modes**

While playing or pausing a cassette, turn the DUAL MODE SHUTTLE ring until the double arrows ◄◄ or ►► appear in the display window.
A high-speed picture without sound is displayed on the screen until you release the ring.

When you release the DUAL MODE SHUTTLE ring, it returns to its original position.
If you turn and release the ring while in the pause mode, the picture returns to pause. If you turn and release it during playback, the picture returns to playback.

- **Picture Search While Fast-Forwarding or Rewinding a Cassette**

When fast-forwarding or rewinding a cassette, you can turn and hold the DUAL MODE SHUTTLE ring to preview a high-speed picture (clockwise for forward viewing or counterclockwise for reverse viewing).

When you release the ring, it returns to its original position and the VCR continues fast-forwarding or rewinding.

Locked Picture Search

This feature lets you lock in and view a high-speed picture while playing or pausing a cassette. In the play or pause mode, press ◀◀ SEARCH (reverse) or ▶▶ SEARCH (forward) on the Remote Commander.
To resume normal playback, press ▷ PLAY.

Skip Playback

While playing a cassette, press SKIP on the Remote Commander.
This feature lets you view your cassette at high speed for about 30 seconds of tape before resuming normal playback. If you press SKIP two times or more, the VCR skips one minute of a scene.

Slow Motion Playback

During playback or playback pause mode, press I► SLOW + or − on the Remote Commander. Change the slow motion speed with the + or − buttons.
Press + to increase the playback speed, and − to decrease the playback speed.
If you leave your VCR in slow motion playback for more than 5 minutes, normal playback resumes.

Frame-by-Frame Picture

During the playback pause mode, press FRAME II► > to advance the picture one frame or ◄II < FRAME to reverse the picture one frame.
Each time you press the button, the picture moves one frame. To resume normal playback, press ▷ PLAY.
FRAME II► > and ◄II < FRAME are also used to change the tape transporting direction during normal playback, double-speed playback and slow motion playback.

Picture Adjustment During Variable Speed Playback

If a picture played in slow motion displays streaks, adjust the picture with the TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ buttons on the Remote Commander. You can adjust the picture more easily by changing the speed closer to normal playback by pressing I► SLOW +.
If the picture appears to shake in the still mode, adjust it using the STILL ADJUST ▼/▲ buttons on the Remote Commander until the picture stabilizes.
When pausing a cassette, you may notice a band at the top or bottom of the screen. Adjust the picture by playing back the cassette in slow motion and using the TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ buttons located on the Remote Commander.

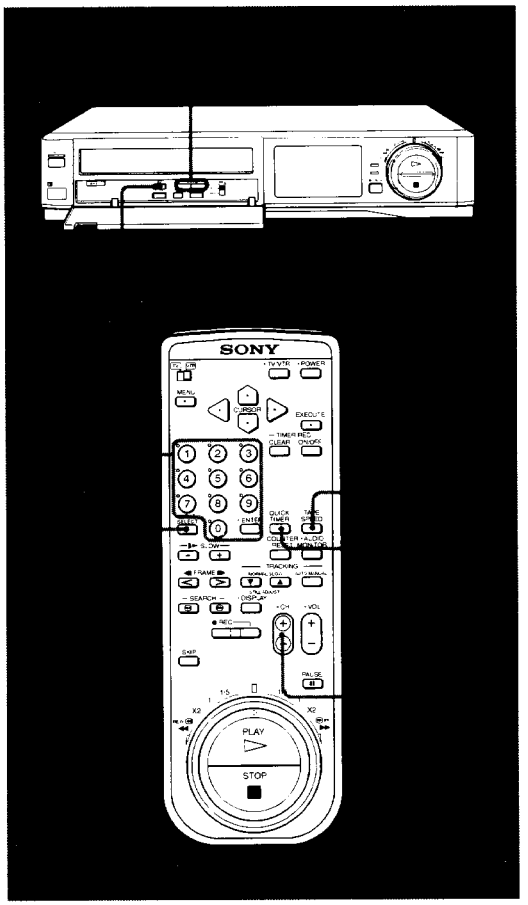
NOTES:
- Some snow or streaks are unavoidable when playing back a cassette in the reverse or reverse slow modes.
- When the tape transporting direction is changed during variable speed playback, played back picture and sound will be distorted for a moment.

Quick-Timer Recording

This function provides you a short cut to recording programs without going through the entire timer setting procedure. You can preset the timer up to 8 hours in units of 30 minutes.

NOTE:
Before you begin, make sure the clock has been set, then ensure that the timer recording function is turned off by checking the TIMER REC (recording) indicator. If the indicator is lit, press TIMER REC ON/OFF to turn it off.

Quick-Timer Recording



If your VCR is in stop mode, perform all of the following steps. If your VCR is currently recording, skip steps 1 to 6, and begin with step 7.

1 **Insert a cassette into your VCR.**

2 **Press INPUT SELECT so that a channel number will appear.**

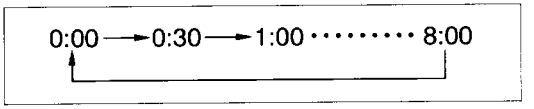
3 **Select the desired recording speed (SP or EP) by pressing TAPE SPEED on the Remote Commander.**

4 **Press QUICK TIMER on the Remote Commander. If you insert a cassette without its safety tab, your VCR will eject the cassette.**

5 **Select the channel you wish to record using the CHANNEL +/– on the VCR, or CH +/– or channel number buttons on the Remote Commander. Press ENTER while the channel display flashes.**

6 **Press QUICK TIMER on the Remote Commander again to start recording.**

7 **Select the recording duration by pressing QUICK TIMER on the Remote Commander to change the duration indicator in the display window. Each time you press QUICK TIMER, the recording duration increases by 30 minutes.**
Once recording has finished, your VCR will turn off automatically.



To stop quick-timer recording

To stop quick-timer recording while a program is being recorded, press TIMER REC ON/OFF.

NOTES:

- If your cassette ends during quick-timer recording, recording stops and the VCR turns off. The cassette will not rewind automatically.
- If a power interruption occurs during quick-timer recording, recording will stop and your VCR will turn off. If the interruption lasts less than three hours and the power is restored before the recording end time, recording will start again from that point.

Buttons Operable During Quick-Timer Recording

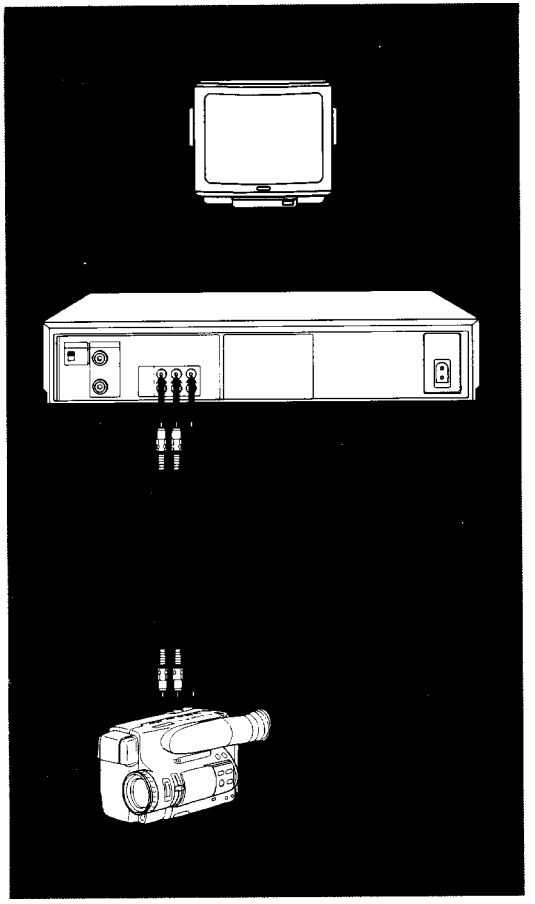
TIMER REC (ON/OFF)	To stop quick-timer recording
QUICK-TIMER	To change recording duration
COUNTER RESET	To reset the counter to zero
TV/VTR	To watch the picture broadcast on another channel (TV)
MENU	Only operable to check the timer recording settings. (See "Checking the Timer Settings," on page 38.)

Editing

Using an additional VCR, you can record programs from one VCR to the other. Here's how:

Editing from Another VCR

Here's how to edit from another VCR (such as an 8mm video camera recorder for playback) when using this VCR for recording.



Before you start:
- Select LINE with INPUT SELECT.
- Select SP or EP with TAPE SPEED.

NOTE:
If your playback VCR has an editing function, this function should also be selected to avoid deterioration of picture quality.

How to edit:

1 **Insert a blank cassette into the recording VCR.**

2 **Turn on the playback VCR and insert a source cassette.**

3 **Locate the playback start point and select the playback pause mode on the playback VCR.**

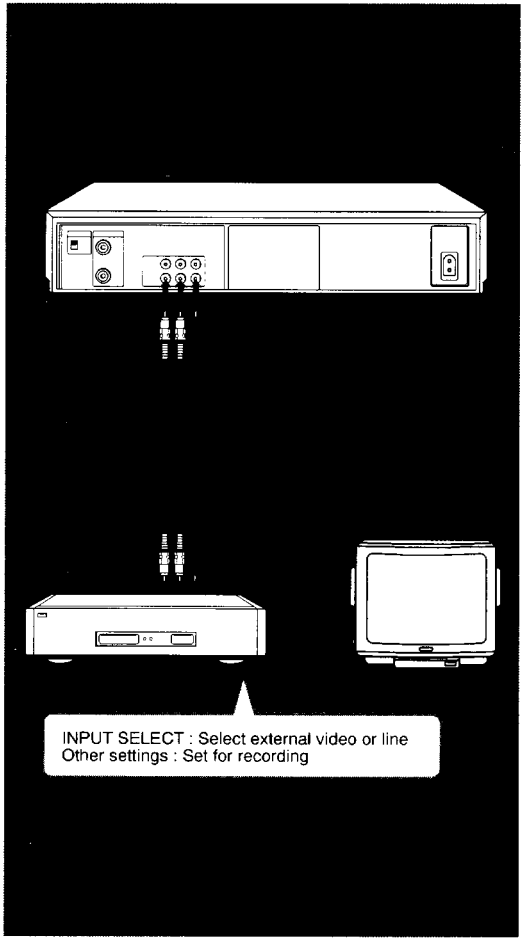
4 **Locate the recording start point and select the recording pause mode on the recording VCR.**

5 **Press II PAUSE on both VCRs.**
For best results, press II PAUSE on the playback VCR just before pressing II PAUSE on the recording VCR. When you've finished editing, press ■ STOP on both VCRs.

NOTES:
- If your playback VCR is a monaural unit, make connections with the VMC-910MS/920MS cable (not supplied).
- When connecting the VCRs, do not connect them so that both are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.

Editing onto Another VCR

Here's how to use this VCR as the playback VCR and another VCR as the recording VCR.



Before you start:
• Press DISPLAY to delete the on-screen display.

How to edit:

1 **Turn on the recording VCR and insert a blank cassette.**

2 **Insert a source cassette into the playback VCR.**

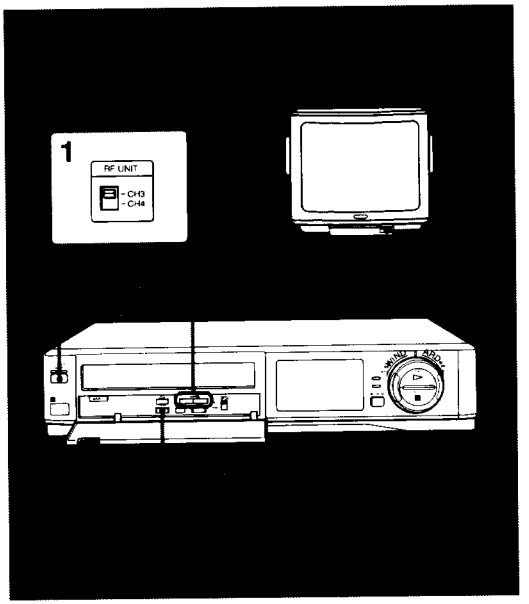
3 **Locate the playback start point and select the playback pause mode on the playback VCR.**

4 **Locate the recording start point and select the recording pause mode on the recording VCR.**

5 **Press II PAUSE on both VCRs.**
For best results, press II PAUSE on the playback VCR just before pressing II PAUSE on the recording VCR. When you've finished editing, press ■ STOP on both VCRs.

NOTES:
• If your recording VCR is a monaural unit, make connections with the VMC-910MS/920MS cable (not supplied).
• When connecting the VCRs, do not connect them so that both are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.

Setting the RF Unit



Why this setting is necessary:

You must set the RF UNIT selector at the rear of the VCR properly so that your TV can receive the correct signal from the VCR. Set the selector to CH3 or CH4, whichever is not active in your area.

If you connect a TV or color monitor equipped with A/V input jacks, skip this adjustment.

1 **Set the RF UNIT at the rear of the VCR to CH3 or CH4, whichever is not active in your area.**

2 **Press POWER.**
The power indicator lights up in the display window.

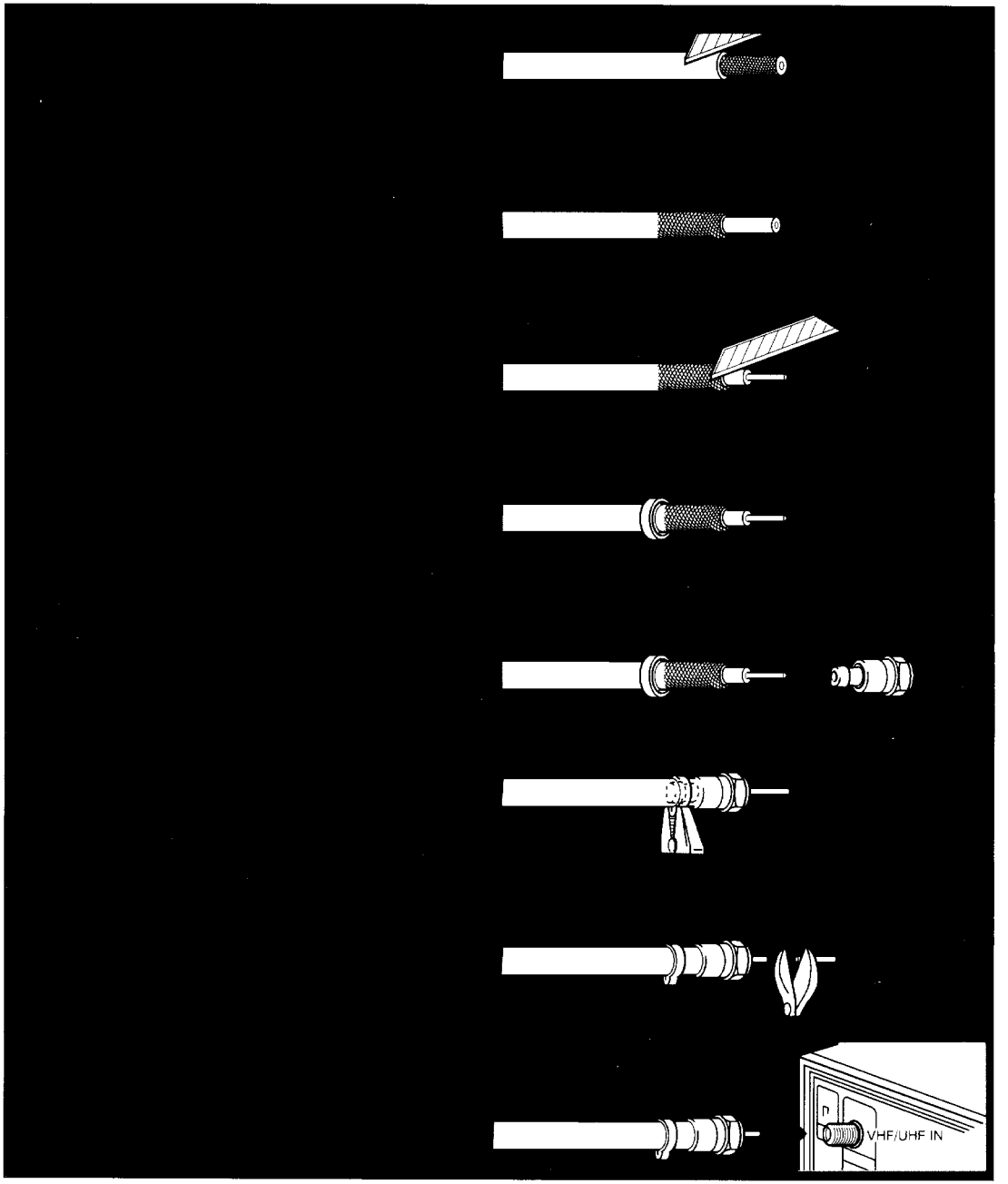
3 **Press TV/VTR so that the VTR indicator lights up in the display window.**

4 **Check that the channel number indicator appears in the display window, then select an active channel in your area by pressing CHANNEL +/−.**

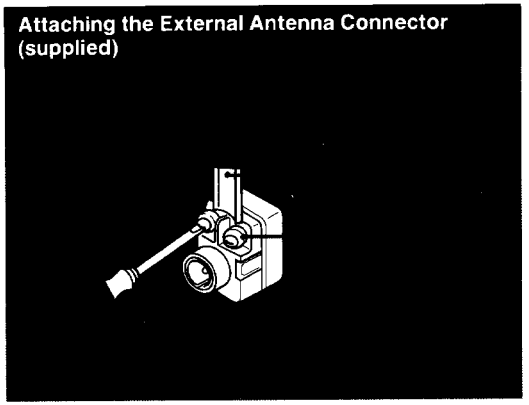
5 **Turn on your TV and set it to the channel you selected in step 1.**
Your TV is now tuned to the VCR. Whenever you use the VCR, set the TV to the preselected channel.

NOTE:
For details on adjusting TV channels, see your TV instruction manual.

Attaching the F-Type Connector (not supplied)



Attaching the External Antenna Connector (supplied)

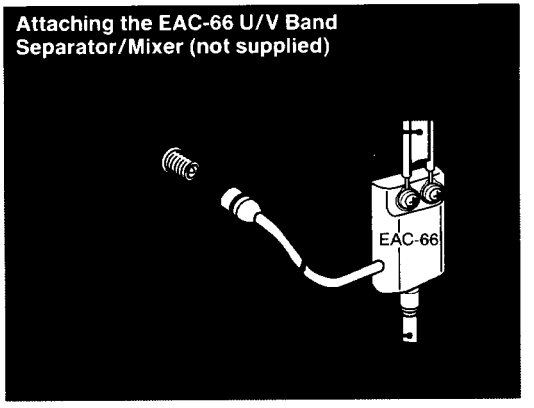


1 Loosen the screws on the antenna connector.

2 Fit the 300-ohm twin lead cable on the UHF antenna under the screws on the antenna connector.

3 Retighten the screws.

Attaching the EAC-66 U/V Band Separator/Mixer (not supplied)



1 Loosen the screws on the U/V band separator/mixer.

2 Fit the 300-ohm twin lead cable on the UHF antenna under the screws.

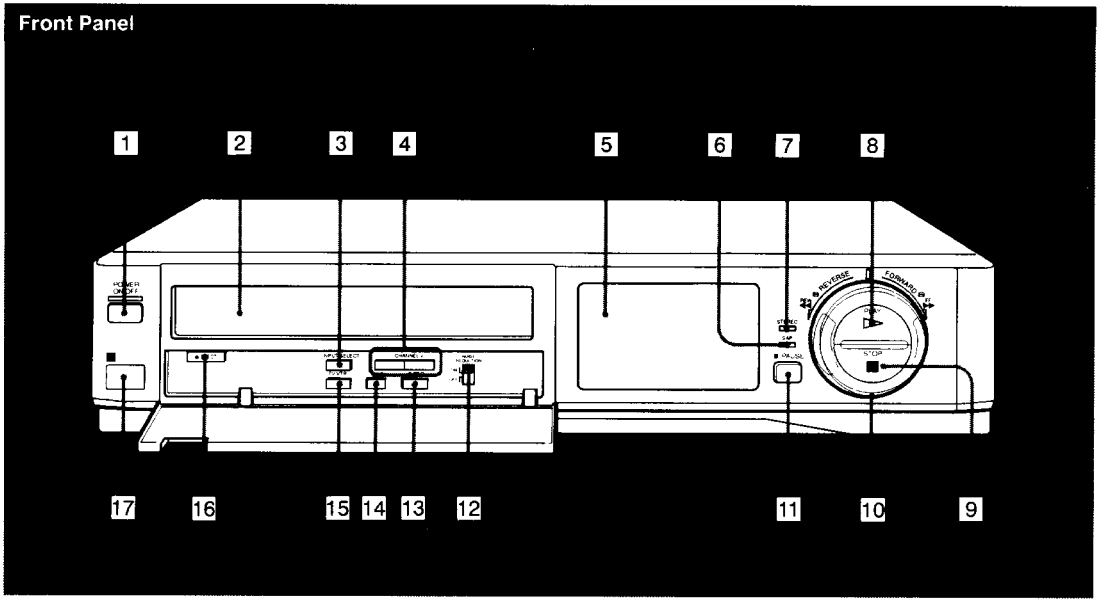
3 Retighten the screws.

4 Connect the 75-ohm coaxial cable to the U/V band separator/mixer.

5 Connect the U/V band separator/mixer to the VHF/UHF IN plug on the VCR.

Identifying the Parts and Controls

Refer to the pages indicated for details.



1 **POWER ON/OFF switch and indicator (page 47)**

2 **Cassette compartment**

3 **INPUT SELECT button (page 31)**

4 **CHANNEL +/−buttons (page 31)**

5 **Display window and function mode display (page 52)**

6 **SAP lamp (page 33)**

7 **STEREO lamp (page 33)**

8 **▷ PLAY button (page 27)**

9 **■ STOP button (page 27)**

10 **DUAL MODE SHUTTLE ring**

11 **PAUSE button (page 41)**

12 **NOISE REDUCTION switch (ON/OFF) (page 27)**

13 **● REC button (page 31)**

14 **TIMER REC ON/OFF button (pages 35, 38, 39, 40)**

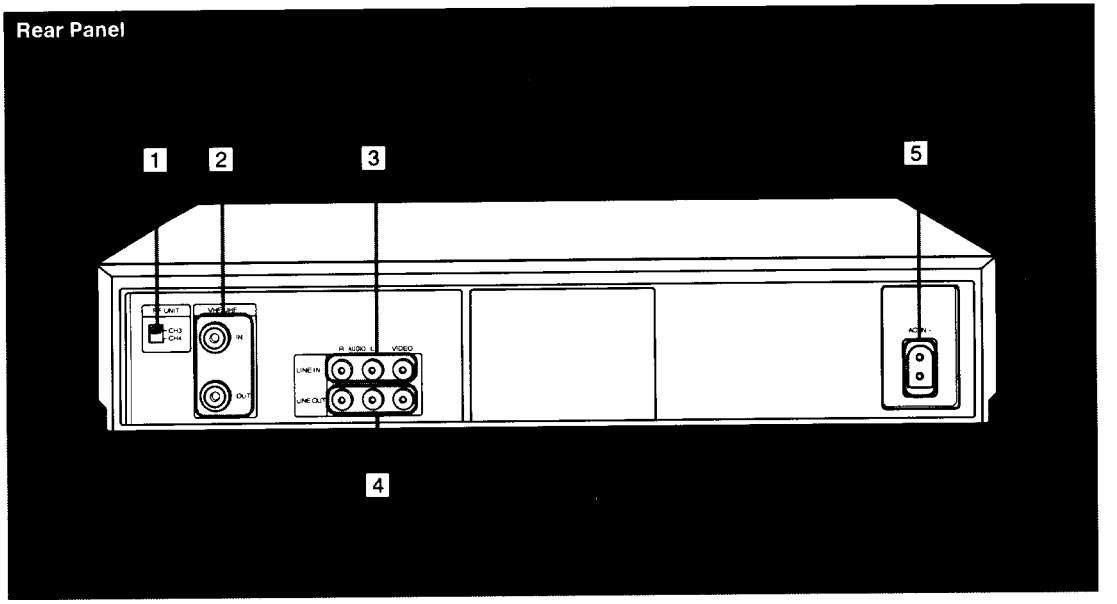
15 **TV/VTR button**

16 **⏏ EJECT button (page 26)**

17 **Remote Sensor**

Refer to the pages indicated for details.

Rear Panel



1 **RF UNIT selector (page 47)**

2 **VHF/UHF IN/OUT connectors (F-type) (pages 8 to 14)**

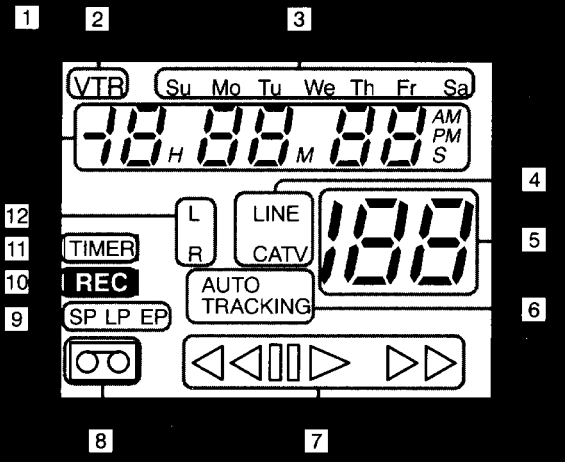
3 **LINE IN AUDIO and VIDEO jacks (phono type)**

4 **LINE OUT AUDIO and VIDEO jacks (phono type) (page 7)**

5 **AC IN socket (page 6)**

Refer to the pages indicated for details.

Display Window Indicators



1 **Linear time counter and current time/quick-timer recording time (page 28, 43)**

2 **VTR indicator (page 31)**

3 **Day of the week indicator**

4 **Input mode indicator**

5 **Channel Number indicator**

6 **AUTO TRACKING indicator (page 29)**

7 **Tape Operation indicator (page 27)**

8 **Cassette indicator (page 26)**

9 **Tape speed indicator (LP is for playback only).**

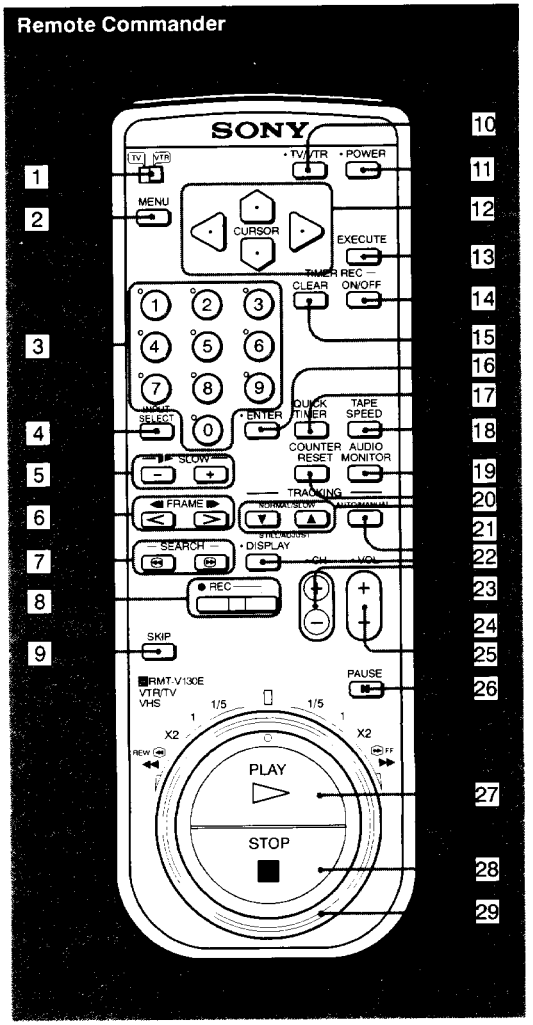
10 **REC (recording) indicator**

11 **TIMER indicator**

12 **Stereo program indicator (L, R) (page 29)**

Refer to the pages indicated for details.

Remote Commander



1 TV/VTR Remote Control selector (page 17)

2 MENU button (pages 18, 20–21, 34, 38)

3 Channel Number buttons* (pages 21, 31, 43)

4 INPUT SELECT button (pages 31, 43)

5 I► SLOW −/+ buttons (page 42)

6 ◄II FRAME II►/< > (direction) buttons (page 42)

7 ◄◄ / ►► SEARCH buttons (page 42)

8 ● REC buttons (page 31)

9 SKIP button (page 42)

10 TV/VTR button* (pages 9–16, 20, 31, 33, 47)

11 POWER button* (pages 38, 40, 47)

12 Cursor shift ▲/▼/◄/► buttons (pages 18–22, 24, 30, 34–35, 38–39)

13 EXECUTE button (pages 18–21, 34–35, 38–39)

14 TIMER REC ON/OFF button (pages 35, 36, 43)

15 TIMER CLEAR button (page 39)

16 ENTER button* (pages 21, 31, 43)

17 QUICK TIMER button (page 43)

18 TAPE SPEED button (pages 31, 35)

19 AUDIO MONITOR button (pages 29, 33)

20 COUNTER RESET button (page 28)

21 TRACKING NORMAL/SLOW ▼/▲ buttons (pages 29, 42)

22 TRACKING AUTO/MANUAL button (pages 29, 42)

23 DISPLAY button* (page 28)

24 CH (channel) +/− buttons*

25 VOL (volume) +/− buttons*

26 II PAUSE button (page 41)

27 ▷ PLAY button (page 27)

28 ■ STOP button (pages 27, 31)

29 DUAL MODE SHUTTLE ring (pages 41, 42)

* When the TV/VTR Remote Control selector 1 is set to TV, you can use the buttons marked with an asterisk to control the TV set.

Troubleshooting

If you have a problem with your VCR, first check the power cord connection, then go through the following list. Should the difficulty persist, unplug the unit, and contact your Sony dealer or local authorized Sony Service Center facility.

	Symptom	Possible causes and remedies
Power	The POWER switch doesn't work.	• The power cord is disconnected. • The VCR is in the timer standby mode. Press TIMER REC ON/OFF, then turn on the VCR.
	The power is turned on but the VCR doesn't work.	• The safety device on the VCR has switched on. Turn the power off, disconnect the power cord from the wall outlet, and let the VCR rest for at least an hour before trying it again.
Time and Date Clock	The clock has stopped and " - : - - " lights up.	• There has been a power interruption. Reset the time, date and timer settings.
TV Reception	TV reception is poor.	• The channel for the VCR is not correctly tuned on the TV. • The TV signal is weak. Adjust the direction of the antenna. • The AC power cord of the VCR is disconnected.
Recording and Playback	Shaky and/or snowy picture during recording.	• The TV's channel is not set to the one preset for the VCR. • The TV signal is weak. Adjust the direction of the antenna.
	No picture on the TV screen.	• Press TV/VTR so that the VTR indication appears in the display window. • The TV channel is not set to Ch 3 or Ch 4, or the video input has not been selected on the TV or monitor.
	The VCR won't record.	• No cassette has been inserted. • The cassette is at its end. • INPUT SELECT is not set correctly. • The safety tab on the cassette is broken off.
	The playback picture is not clear.	• The channel for the VCR is not correctly tuned on the TV. • A cassette recorded on another VCR is being played back. Adjust the tracking with TRACKING NORMAL/SLOW and STILL ADJUST on the Remote Commander. • The video heads are dirty. Clean the heads using the Sony T-25CL video head cleaning cassette. For details on cleaning, refer to the instructions furnished with the cleaning cassette. If a cleaning cassette is not available in your area, have the heads cleaned at your nearest Sony Service Center facility. With this service, there would be a standard charge. (Do not use a commercially-available wet-type cleaning cassette. It may cause damage to the video heads.) • The video heads are worn out.

	Symptom	Possible causes and remedies
Recording and Playback	The picture moves vertically during picture search mode.	• Adjust the vertical hold control on the TV or color monitor.
	The sound drops out.	• The cassette is defective. Use a new video cassette.
	Stereo recording cannot be made.	• AUTO STEREO is set to OFF in the SET UP MENU.
	Both main and SAP sounds are heard when playing back a cassette on which an MTS broadcast was recorded.	• AUDIO MIX is set to ON in the SET UP MENU.
	No sound is recorded on the normal audio track.	• NORMAL AUDIO is set to SAP in the SET UP MENU when there is no SAP broadcast.
Timer Recording	Timer setting cannot be made.	• The current time has not been preset.
	The TIMER REC (recording) indicator is not lit even though you've pressed TIMER REC (ON/OFF).	• No cassette has been inserted. • The cassette is at its end. • No setting for timer-recording has been made.
	The cassette is ejected when you press TIMER REC (ON/OFF).	• The safety tab of the cassette has been removed.
	Timer recording was not made.	• There has been a power interruption of three hours or more. • TIMER REC (ON/OFF) was not pressed.
On-Screen Display	The On-Screen Display does not appear on the screen.	• Press DISPLAY.
Others	Cassette cannot be inserted.	• A cassette has already been inserted.
	The Remote Commander cannot be operated.	• The batteries are low.
	The tracking indicator does not appear on the screen.	• Press DISPLAY. • The recording condition of the cassette is very poor and tracking cannot be adjusted.
	On-screen help message appears on the TV screen.	• An illogical operation has been tried. See the "On-Screen Help Messages" (page 56).

On-Screen Help Messages

PLEASE PUT IN A CASSETTE.
PLEASE STOP THE TAPE.
PLEASE PUSH INPUT SELECT TO CHANGE.
VCR IS RECORDING.
PLEASE PUSH TIMER REC TO SET TIMER.

Specifications

System

Format	VHS NTSC standard
Video Recording System	Rotary two-head helical scanning FM system.
Video Head	Four heads
Video signal	NTSC color, EIA standards
Tape Speed	SP: 33.35 mm/s (1 3/8 inches/s) EP: 11.11 mm/s (7/16 inches/s) LP: 16.67 mm/s Playback only (11/16 inches/s)
Maximum recording/ playback time	8 hrs in EP mode (with T-160 tape)
Fast-forward and rewind time	Approx. 4 min 30 s (with T-120 tape)

Tuner Section

Channel Coverage	VHF channels 2 to 13 UHF channels 14 to 69 CATV channels A-8 to A-1, A to W, W+1 to W+84
Antenna	75-ohm antenna terminal for VHF/UHF

Inputs and Outputs

LINE IN	VIDEO IN (phono jack) (1) Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative AUDIO IN (phono jack) (2) Input level: −7.5 dBs (0 dBs = 0.775 Vrms) Input impedance: more than 47 kilohms
LINE OUT	VIDEO OUT (phono jack) (1) Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative AUDIO OUT (phono jack) (2) Standard output: −7.5 dBs at load impedance 47 kilohms Output impedance: less than 10 kilohms

Timer Section

Clock	Quartz locked
Time Indication	12-hour cycle
Timer Setting	Only for recording 8 programs in one month at max.
Power back-up	Built-in self-charging capacitor Back-up duration: Up to three hours at one time

General

Power requirements	120 V AC, 60 Hz
Power consumption	21 W 10.5 W (in standby condition)
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	−20°C to 60°C (−4°F to 140°F)
Dimensions	430 × 91 × 348mm(w/h/d) (17 × 3 1/2 × 13 3/4 inches)
Weight	5.4 kg (11 lb 15 oz)

Wireless Commander RMT-V130E

Remote control system	Infrared control
Power requirements	3 V DC, 2 size AA batteries (IEC designation R6)

Accessories Supplied

Wireless Commander RMT-V130E ..... (1)
Size AA (R6) batteries ..... (2)
75-ohm coaxial cable with F-type connectors ..... (1)
External antenna connector ..... (1)
AC power cord ..... (1)
Audio/Video connecting cable (3 phono to 3 phono) ..... (1)

Design and specifications are subject to change without notice.

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